



PAHSIMEROI FISH HATCHERY

Brood Year 2004 Summer Chinook Report

By

**Todd Garlie, Fish Hatchery Manager I
Doug Engemann, Assistant Fish Hatchery Manager
Nick Rieth, Fisheries Technician
Laura Rose, Biological Aide**

**IDFG 06-29
September 2006**

TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	1
INTRODUCTION	2
OBJECTIVES	2
HATCHERY FACILITIES.....	2
WATER SUPPLY	3
STAFFING	4
ADULT SUMMER CHINOOK TRAPPING	4
ADULT AGE CLASS DETERMINATION	5
SPECIAL MARKS AND TAGS.....	6
ADULT HANDLING PROCEDURES	7
ADULT HOLDING POND RECORD	8
ADULT RELEASES	8
SUMMER CHINOOK SPAWNING AND INCUBATION.....	8
CRYOPRESERVATION	9
ADULT CARCASS DISPOSITION.....	10
NON-TARGET SPECIES	10
FISH PRODUCTION	10
SMOLT RELEASES	11
PAHSIMEROI FISH HEALTH SECTION	12
Diseases Encountered and Treatment	12
Acute Losses	12
Other Assessments.....	12
FISH MARKING	13
HATCHERY IMPROVEMENTS	13
RECOMMENDATIONS	15

TABLE OF CONTENTS (Continued)

	<u>Page</u>
ACKNOWLEDGMENTS	16

LIST OF TABLES

Table 1.	Pahsimeroi Fish Hatchery Brood Year 2004 summer Chinook salmon run timing	18
Table 2.	Length frequency of male summer Chinook for Pahsimeroi Fish Hatchery	21
Table 3.	Length frequency of female summer Chinook for Pahsimeroi Fish Hatchery ...	23
Table 4.	Pahsimeroi summer Chinook disposition summary, Brood Year 2003.....	25
Table 5.	Pahsimeroi summer Chinook coded wire tag summary, Brood Year 2004	26
Table 6.	Pahsimeroi summer Chinook disposition summary, Brood Year 2003	32
Table 7.	Brood Year 2004 summer Chinook egg incubation record for Pahsimeroi Hatchery.. ..	33
Table 8.	Pahsimeroi Fish Hatchery summer Chinook cryopreservation sampling Brood Year 2004	34
Table 9.	Fish Pathology Report	35
Table 10.	Brood Year 2004 feed summary for Pahsimeroi Fish Hatchery	36
Table 11.	Brood Year 2004 smolt survival by life stage	37
Table 12.	Brood Year 2004 smolt survival by life stage, Pahsimeroi Hatchery	37

LIST OF FIGURES

Figure 1.	Brood Year 2004 summer Chinook salmon run timing	39
Figure 1A.	Brood Year 2004 natural origin male summer Chinook run timing	40
Figure 1B.	Brood Year 2004 natural origin female summer Chinook run timing	41
Figure 2.	Length frequency of hatchery-origin summer Chinook salmon, Brood Year 2004.....	42
Figure 3.	Length frequency of natural-origin summer Chinook salmon, Brood Year 2004.....	43

TABLE OF CONTENTS (Continued)

	<u>Page</u>
Figure 4. Length frequency of all summer Chinook trapped, Brood Year 2004	44

LIST OF APPENDICES

Appendix A. Pahsimeroi Fish Hatchery Chinook salmon stock history.....	46
Appendix B. Pahsimeroi Fish Hatchery summer Chinook smolt release and adult return information.....	47
Appendix C. Brood Year 2001 water temperature profile for Pahsimeroi Hatchery	48

ABSTRACT

The summer Chinook program at Pahsimeroi Fish Hatchery (PFH) is part of Idaho Power Company's (IPC) mitigation requirement for the Hells Canyon Complex on the Snake River. The decision to shift the program's focus from a harvest augmentation program to a supplementation-conservation program was a management decision made by the Idaho Department of Fish and Game (IDFG) and the National Oceanographic and Atmospheric Administration (NOAA). This decision was made in 1992 when Pahsimeroi summer Chinook salmon were listed as threatened under the Federal Endangered Species Act of 1973. The program continues to fulfill IPCs mitigation requirements under its current Federal Energy Regulatory Commission operating license.

On June 14, 2004, PFH staff installed the weir on the Pahsimeroi River and began trapping summer Chinook salmon. The weir was left in place until trapping ceased on September 28, 2004. The first fish was trapped on June 16, 2004 and the last on September 28, 2004. A total of 3,331 summer Chinook salmon (*Oncorhynchus tshawytscha*) were trapped during the 2004 brood year. This was the largest summer Chinook run to return to Pahsimeroi Hatchery. The total pre-spawn mortality was 21 (2.6%), which included 8 females and 13 males. The total number of fish retained for spawning was 816.

Artificial spawning of summer Chinook salmon commenced on August 23, 2004 and concluded on September 27, 2004. A total of 368 females were spawned, of which 70 were culled. A total of 1,620,513 green eggs were collected for production purposes, for an average fecundity of 4,404 eggs per female. The overall eye-up percentage was 86.9%. A total of nine lots were incubated at PFH and then shipped as eyed eggs to Sawtooth Fish Hatchery (SFH) for hatching and early rearing on well water. This transfer limits the exposure of fry to *Myxobolus cerebralis* (*M. cerebralis*), the causative agent of whirling disease, which is present in the PFH water source. The SFH raised lots 1-5 and part of 6 before transporting the pre-smolts back to PFH for final rearing in June 2005. Part of lot 6 and lots 7-9 were shipped back to PFH in January 2005 and reared in the early rearing raceways. In September 2005, both groups of fish were transferred to two rearing ponds at the PFH upper hatchery. They were raised on river water until being released in March of 2006.

The outlet screens for rearing pond 2 were removed on March 13, 2006 and the screens for pond 1 were pulled on March 20, respectively, to allow volitional release of Chinook smolts into the Pahsimeroi River. To prepare for the demolition stage of the new secondary pond renovation, remaining smolts were forced out of the ponds by March 30, 2006. A total of 1,073,951 smolts were released for a combined weight of 48,677 pounds. The fish averaged 22 fish per pound (fpp) and consisted of one group. These fish were all classified as reserve group listed at the time of release.

Todd Garlie
Hatchery Manager 1

Doug Engemann
Assistant Hatchery Manager

INTRODUCTION

Pahsimeroi Fish Hatchery (PFH) is located near the town of Ellis and consists of two hatchery facilities. The main hatchery is located one mile upstream of the confluence of the Pahsimeroi and Salmon rivers. The second hatchery is located off Dowton Lane, seven miles further upstream on the Pahsimeroi River. Both hatcheries were constructed in 1967 by IPC and are owned and funded by IPC. Hatchery operations and management are the responsibility of IDFG. The summer Chinook program is part of IPC's mitigation requirement for anadromous fish losses resulting from the construction and operation of the Hells Canyon Complex on the Snake River. However, due to the 1992 listing of Snake River summer Chinook salmon (*Oncorhynchus tshawytscha*) as threatened under the Federal Endangered Species Act of 1973, PFH has shifted from a harvest augmentation program to a supplementation–conservation program. The number of adult summer Chinook salmon released into the Pahsimeroi River for natural spawning, as well as the number of those kept at the hatchery for artificial propagation depends on marked and unmarked fish returns and their listing status. NOAA Fisheries permits #922 and #903 authorize the direct and incidental take of listed, naturally produced and artificially propagated summer Chinook salmon.

OBJECTIVES

The hatchery's mitigation program goals focus on summer Chinook salmon and A-run Steelhead (*Oncorhynchus mykiss*). The following objectives are designed to help accomplish these goals:

1. Rear one million summer Chinook smolts for release into the Pahsimeroi River.
2. Trap and spawn sufficient numbers of adult summer Chinook returning to PFH to produce 1.5 million green eggs.
3. Trap and spawn sufficient numbers of adult Steelhead returning to PFH to produce 1.5 million steelhead eggs to be shipped to Oxbow Fish Hatchery for later distribution to Niagara Springs Fish Hatchery.
4. Work with IDFG management, research, and IPC to identify the most effective operating procedures and rearing strategies and develop the facility to enhance survival, fish health, and genetic diversity.

HATCHERY FACILITIES

Pahsimeroi Fish Hatchery is comprised of two hatchery facilities. The main hatchery consists of six buildings, two of which are residences for full-time employees (a 1994 wood-frame home and a 1999 double-wide mobile home). A third building houses a garage, shop, and two-bedroom living quarters for temporary employees. A fourth building contains the office, public restrooms, and an incubation room. A fifth building is used for storage and has two sections: one for chemical and machinery storage and a second for non-chemical equipment storage. The sixth building is the spawning shed. The upper hatchery consists of a garage/shop, a walk-in freezer, and a 7-ft x 10-ft. storage shed.

The fish production facilities include the following:

Main Hatchery

- Removable adult weir across the Pahsimeroi River.
- Fish ladder and 3 ponds (each pond measures 70-ft x 16-ft x 6-ft; the two outside ponds are for adult holding, and the center pond is considered the trap).
- Four raceways (100-ft x 4-x 3-ft) supplied by river water and limited (200 gpm) spring water.
- An incubation room with twenty 16-tray stacks of Heath tray vertical-flow incubators supplied by pumped spring water.

Upper Hatchery

- Two 300-ft x 40-ft x 5-ft earthen rearing ponds supplied with water from the Pahsimeroi River.
- Two 300-ft x 40- ft x 4-ft earthen settling ponds located directly below the rearing ponds.

Holding capacity for the trap and adult holding ponds is approximately 2,000 adult summer Chinook, and 5,000 adult A-run Steelhead. With 3 cfs of river water, the raceways can hold up to one million 2-inch Chinook fry at a 0.50 density index. At inflows of 20 cfs, holding capacity in the two rearing ponds at the upper hatchery is one million 6.5-inch summer Chinook smolts. Incubation capacity is currently 1.5 million summer Chinook eggs and 6 million A-run Steelhead eggs.

WATER SUPPLY

Incubation water consists of Specific Pathogen-Free (SPF) spring water, which is pumped to a 10,000 gallon holding tank and gravity-fed to the incubators. The spring source can produce up to 200 gpm of 52 F to 56 F water.

The adult trap and holding ponds at the main hatchery are supplied with water from the Pahsimeroi River through a 0.25-mile earthen intake canal. Water from the canal is also used to supply the early rearing raceways. A water right for 40 cfs held by IPC allows hatchery personnel to divert water from the Pahsimeroi River for operations at the main hatchery. Water temperature varies throughout the year with water temperatures fluctuating from seasonal lows of 33 F in the winter to seasonal highs of 72 F in the summer. Daily fluctuations can be as much as 12 F.

Water for the rearing ponds at the upper hatchery also comes from a diversion in the Pahsimeroi River. The IPCs water right for 20 cfs at the upper hatchery allows a flow of 10 cfs per pond. The water is diverted down a concrete canal and flows through the ponds and into the settling ponds before being discharged back to the Pahsimeroi River. The Pahsimeroi River has a high organic load during winter, but improves during the summer.

Both intake canals are equipped with NOAA Fisheries-approved rotating drum screens designed to prevent entrapment of wild Chinook and steelhead from the river into the hatchery facilities.

STAFFING

Pahsimeroi Fish Hatchery is staffed by both permanent and temporary employees. The permanent staff consists of a Hatchery Manager 1 and an Assistant Hatchery Manager. The temporary employees provide assistance during the steelhead and summer Chinook trapping and spawning seasons and fish rearing. They include a year-round Fisheries Technician, two Bio-Aides and one Laborer.

At the peak of the steelhead and Chinook spawning seasons, IDFG regional staff, IDFG volunteers, SFH staff, and a Fisheries Technician from IDFG Nampa Fisheries Research also assist with spawning and with routine hatchery operations.

ADULT SUMMER CHINOOK TRAPPING

In 2004, the trap was operational from June 14 through June 28, 2004. The first adult summer Chinook arrived on June 16, 2004 and the last adult arrived on September 28, 2004. Summer Chinook returning in 2004 originated from brood years 1999, 2000, and 2001. By definition, supplementation fish (Idaho Supplementation Studies - ISS) are fish that are derived from natural-origin x natural-origin or natural-origin x hatchery crosses. Reserve group fish are derived from hatchery x hatchery crosses. The listing status, mark type, and the number of smolts released from each Brood Year are as follows:

BY1999-Comprised of three groups of fish.

Group 1-hatchery-origin ISS supplementation listed, 100% coded wire tagged and no fin clips. A total of 61,196 smolts from this group were released from secondary rearing pond 2.

Group 2-hatchery-origin high Bacterial Kidney Disease (BKD) ISS supplementation listed, 100% coded wire tagged with a different tag code from group 1 and no fin clips. A total of 24,743 smolts were released at 8.92 fish per pound (fpp) and with an average length of 6.63 inches. These fish were reared in secondary rearing pond 1.

Group 3-hatchery-origin reserve unlisted, 100% adipose fin clipped no coded wire tags. A total of 197,124 smolts were released from this group from secondary rearing pond 2. Fish from Group 3 and Group 1 were reared in secondary rearing pond 2. Pond 2 fish averaged 7.98 fpp with an average length of 6.84 inches. All smolts from Brood Year 1999 were released in April 2001.

BY2000-Comprised of two groups of fish.

Group 1-hatchery-origin reserve listed, 100% adipose fin clipped, no coded wire tags. A total of 418,417 smolts were released from this group. Subtotals of this group reared by pond equal 252,876 reared in secondary pond 2 and 165,541 in secondary pond 1.

Group 2-hatchery-origin ISS supplementation listed, 100% coded wire tagged and no fin clips. A total of 89,923 of this group of smolts were released from secondary rearing pond 1.

The fish size at release by pond equals 10.8 fpp with an average length of 6.35 for secondary rearing pond 1, and 10.95 fpp with an average length of 6.30 inches for secondary rearing pond 2. All smolts from Brood Year 2000 were released in April 2002.

BY2001-Comprised of two groups of fish

Group 1-hatchery-origin reserve listed, 100% adipose fin clipped, no coded wire tags. A total of 909,926 smolts were released from this group. Subtotals of this group reared by pond equal 610,068 reared in secondary pond 1 and 299,858 in secondary pond 2.

Group 2-hatchery-origin ISS supplementation listed, 100% coded wire tagged and no fin clips. A total of 295,992 of this group of smolts were released from secondary rearing pond 2.

The fish size at release by pond equals 15.82 fpp with an average length of 5.71 inches for pond1, and 14.59 fpp with an average length of 5.8 inches for pond 2. All smolts from Brood Year 2001 were released in March 2003.

No reserve group fish originating from the three groups discussed above were released for natural spawning. All reserve group fish were either ponded for spawning or killed for Tribal/Charitable giveaway. Fish with coded wire tags were released above the weir for natural spawning, ponded for spawning, or killed for Tribal/Charitable giveaway. Snouts from fish containing coded wire tags that were not released for natural production were collected and sent to the department's lab in Nampa for tag retrieval.

A total of 3,331-summer Chinook were trapped in 2004. This was the largest summer Chinook run to return to the Pahsimeroi Hatchery. The hatchery origin component consisted of 26 mini-jacks, 369 jacks, and 2,746 adults (1,037 males and 1,709 females). The natural component consisted of 1 mini-jack, 29 jacks, and 170 adults (71 males and 99 females). All natural/wild fish were released for natural reproduction. None were retained for spawning. (Tables 1–4; Figure 1–4).

ADULT AGE CLASS DETERMINATION

Two sets of criteria were used to determine age class in 2004. The age of hatchery-origin summer Chinook was determined by mark type and fork length, while the natural-origin summer Chinook were aged by fork length only. Hatchery-origin summer Chinook with an adipose fin clip or coded wire tag and a fork length of less than 66 cm were classified as three years old (jacks). Mini-jacks are defined as fish equal to or less than 44 centimeters in fork length. Dorsal fin ray cross-section analysis determined the absence of salt-water annuli. This suggests these fish remained in fresh water for one year prior to returning to the Pahsimeroi Hatchery.

Hatchery-origin summer Chinook with an adipose fin clip or coded wire tag and a fork length between 66 cm and 85 cm, inclusive are classified as four years old. Hatchery-origin summer Chinook with an adipose fin clip or coded wire tag, and a fork length greater than 85 cm were classified as five years old. The age class criteria for natural-origin (unmarked) fish is as follows:

- Chinook with fork lengths greater than 85 cm were classified as five years old.
- Chinook with fork lengths between 66 cm and 85 cm inclusive were classified as four years old.
- Chinook with a fork length less than 66 cm were classified as jacks.
- Chinook with a fork length up to, and inclusive of, 44 cm were classified as mini-jacks.

Table 4 includes a breakdown of age class results, Mini-jacks are included in the jack category.

SPECIAL MARKS/TAGS

Of the 3,331 Chinook trapped this year, 16 fish were found to have radio transmitters. Fifteen of the fish were of hatchery-origin and one was of natural origin. All fish were scanned for PIT tags and coded wire tags. Fish that contained radio tags were part of a study being conducted by the University of Idaho. No PIT tags were detected this season. PIT tag recovery data is used to determine downstream survival of juvenile fish through the dams. PIT tags are also used to determine run timing of adults through the Columbia and Snake River corridors and to the hatchery. A total of 251 snouts containing coded wire tags were collected this season from brood year 2004 Chinook by hatchery personnel (Table 5). Snouts collected by Nampa Research personnel during redd count activities are not included in table 5.

Specific information on these fish with radio tags are as follows:

Trap Date	Sex	Fork Length (CM)	Clips or Marks	Origin	Radio Transmitter #
June 29	F	77	AD	H*	CH 17, code 099
July 8	M	78	AD	H	CH 24, code 041
July 9	M	75	AD	H	CH 21, code 128
July 16	F	72	AD	H	CH 24, code 008
July 20	F	81	AD	H	CH 23, code 196
July 21	M	70	AD	H	CH 21, code 204
July 21	F	77	AD	H	CH 21, code 206
August 23	M	77	AD	H	CH 24, code 123
August 23	F	74	AD	H	CH 21, code 171
September 3	F	77	AD	H	CH 24, code 115
September 3	F	75	AD	H	CH 24, code 145
September 13	F	79	AD	H	CH 21, code 155
September 15	M	75	AD	H	CH 25, code 103
September 15	F	75	AD	H	CH 24, code 004
September 28	F	84	AD	H	CH 24, code 053
August 25	M	65	None	N*	Ch24, code 104

*H=Hatchery, N=Natural

ADULT HANDLING PROCEDURES

During the summer Chinook trapping season, the trap was checked daily and all fish were handled in accordance with protocols established by NOAA Fisheries. All salmon (with the exception of new surplus arrivals in the trap killed and given to tribal/charitable entities) were anaesthetized in a solution of MS-222. While anaesthetized, fish were examined for fin clips, measured to the nearest centimeter for fork length, and identified by sex. Each fish was also intraperitoneally injected with erythromycin at a rate of 20 mg/kg body weight for BKD management. All fish were allowed to recover in a freshwater recovery tank before being ponded or released.

All summer Chinook held for spawning were marked with a floy tag. Floy tagging each salmon during trapping makes the tracking of these fish easier during spawning season.

A small pelvic fin sample was collected from each fish (for DNA purposes) that were released above the weir to spawn naturally. These DNA samples were collected as part of a study being conducted by Nampa Fisheries Research Technician, Brian Leth. His goal is to determine what contribution hatchery fish are making to the natural population versus wild fish. Collecting DNA samples from spawning adults and out-migrating juvenile salmon will allow Brian to determine genetically which group of fish makes the most contribution.

ADULT HOLDING POND RECORD

The number of Chinook retained for spawning each year is dictated to hatchery personnel by IDFG Fisheries biologists based on the number and origin of returning adults. Surplus hatchery-origin listed or hatchery-origin unlisted fish were killed and given to the Shoshone-Bannock Tribe (SBT) and local charities. A breakdown of the disposition of all fish and their listing status can be found in Table 4. Fish that were killed and given to the SBT and local charities can be found in Table 6.

Beginning July 1, and continuing through September 15, 2004 both the male and female holding ponds were treated 4 times weekly with a 1-hour, 167 ppm formalin treatment to prevent mortality caused by secondary mycotic infections.

This year's pre-spawn mortality equated to 2.6% of the 816 fish held for spawning. Female pre-spawn mortality totaled 8 and male pre-spawn mortality totaled 13. The total number of trap mortalities this season was 6 hatchery origin females. No natural fish were held for spawning.

ADULT RELEASES

All natural origin fish were released to spawn naturally in the Pahsimeroi River. The number of natural origin fish released totaled 200 (100 females, 77 males, 23 jacks and 0 mini-jacks). The total number of ISS fish released for natural reproduction was 281 (133 females, 126 males, 22 jacks and 0 mini-jacks). For a disposition summary refer to Table 4.

SUMMER CHINOOK SPAWNING AND INCUBATION

Female Chinook were sorted for ripeness and spawned for the first time on August 23, 2004. Spawning concluded September 27, 2004. Each ripe female was killed and then spawned by incision method. Prior to incision, a 1-cc sample of ovarian fluid was collected from sixty fish throughout the spawning season to test for Infectious Hematopoietic Necrosis (IHN) and Infectious Pancreatic Necrosis (IPN). After egg collection and fertilization, kidney samples were collected from all females to test for BKD and 20 head wedges were collected to test for whirling disease. All samples were sent to the Eagle Fish Health Laboratory (EFHL). Eggs from fish that tested high positive for BKD were culled. Normally, PFH culls eggs from fish that have an Enzyme Linked Immunosorbant Assay (ELISA) optical density of 0.25 or greater. Only 3 females tested high ELISA.

All eggs were incubated to eye-up at PFH. The incubator trays were loaded at the rate of one female per tray. From 48 hours after spawning until eye-up, eggs at PFH were treated three times a week with a 1,667-ppm formalin treatment to prevent fungal growth on the eggs, and three times a week with a 100-ppm argentyne treatment to prevent soft shell disease, a disease caused by bacteria that results in increased egg mortality and pre-mature hatching. At eye up (approximately 450 Fahrenheit temperature units (FTUs), the eggs were shocked twice by dropping them into a bucket of water from a height of approximately 16 inches.

Dead eggs were picked and enumerated with a Jensorter electronic counter/picker. The number of dead eggs and eyed-eggs were added together to obtain the total number of green eggs per female. By dividing the number of eyed-eggs by the number of green eggs, the overall eye-up percentage per female was determined (Table 7). Once the eggs reached the eyed stage, they were placed in coolers of water and transported to SFH for final incubation and early rearing. Prior to transport, ice was placed in the coolers to chill the water and eggs. Upon arrival at SFH, all eggs were tempered and disinfected with argentyne before being placed in standard vertical-flow incubators.

A total of 368 females were spawned, yielding 1,620,513 green eggs. Fecundity averaged 4,404 eggs per female and the overall eye-up percentage was 86.9% (Table 7). All viral samples tested negative for IPN and IHN. Kidney sample test results ranged from negative to high positive for BKD. Eggs from those females testing high positive were destroyed without enumeration.

This year only one group of fish was created from broodstock retained at Pahsimeroi Hatchery. This was dictated to hatchery personnel through the IDFG Fisheries Bureau. This was because the ISS study which required hatchery personnel to create multiple groups of fish (reserve and ISS) ended in 2002. The IDFG has been working with NOAA and believes that NOAA will approve a new Section 10 permit that allows fishing to remove "surplus" listed broodstock or that the progeny derived from a broodstock with less than 50% listed hatchery fish would not be considered listed. NOAA has assured IDFG that they can craft a new Section 10 broodstock permit that allows "fishing" as a broodstock management technique for listed and unlisted Pahsimeroi summer Chinook salmon.

Hatchery-origin listed and hatchery-origin unlisted fish were used to create BY 2004 progeny. Each female's eggs were placed into a separate bucket. Males were selected at random and each male was spawned directly into the bucket. Then, wellwater was added to activate the sperm and allowed to fertilize the eggs for 3 to 5 minutes. Some males were spawned more than once due to the fact that the males ripened earlier than normal this season and died before hatchery personnel had the chance to spawn them. After fertilization wellwater was used to rinse the eggs. The eggs were water hardened in a 100 ppm solution of argentyne and allowed to sit for 60 minutes, then poured directly into vertical stack incubator trays at PFH.

CRYOPRESERVATION

With the future projection of few returning adult summer Chinook salmon to the PFH, the Nez Perce Tribe (NPT) has initiated a cryopreservation program. During the spawning season, personnel from the NPT collected milt from naturally produced and artificially propagated adult male summer Chinook salmon. The milt was tested for motility prior to freezing and is currently being stored in repositories at the University of Idaho and Washington State University (Table 8).

ADULT CARCASS DISPOSITION

During the spawning season all carcasses not donated to charity were placed into a refrigeration unit and frozen. At the conclusion of the spawning season, the frozen carcasses were transported to a rendering plant in Kuna, ID.

NON-TARGET SPECIES

The only non-target species trapped this season were rainbow trout *Oncorhynchus mykiss*.

Rainbow Trout

Trap Date	Sex	Length (CM)	Disposition
7/21/04	F	38	Released
7/26/04	M	34	Trap Mort
7/30/04	M	40	Trap Mort
8/5/04	M	33	Released
8/11/04	F	38	Released
8/13/04	F	28	Released
8/17/04	F	30	Released
8/17/04	M	36	Released
8/23/04	M	39	Released
8/30/04	F	30	Released
8/30/04	F	35	Released
8/30/04	F	37	Released
8/30/04	F	41	Released
9/3/04	M	42	Released
9/15/04	F	32	Released
9/15/04	F	31	Released
9/22/04	F	38	Released
9/27/04	F	37	Released
9/27/04	F	39	Released
9/27/04	F	42	Released

FISH PRODUCTION

Because Chinook salmon are more susceptible to whirling disease when they are less than 3.5 inches in length, it is recommended that they be reared on Specific Pathogen-Free (SPF) water until attaining that size. Once the salmon have reached 3.5 inches, whirling disease symptoms become less overt, so the fish can be transferred to outside raceways supplied with river water.

In January and February 2005, SFH personnel transferred 825,277 PFH summer Chinook salmon fry from indoor vertical-flow incubators to two large outside raceways on river water. Also in January, a total of 284,924 fry were transferred to PFH and ponded in the early rearing raceways due to lack of space and water at SFH. SFH personnel observed noticeable "pinheading" and increased mortality with the PFH summer Chinook fry ponded in the large

outdoor rearing raceways. This was due to fifteen days of sub-zero weather in February, which caused significant ice buildup in the raceways preventing these fish from being fed and the raceways from being cleaned. The cold weather continued throughout the spring at SFH and in March there were a total of 23,215 mortalities. The cold water temperatures resulted in a slow growth rate delaying marking of these fish until late August and September of 2005. On August 29, 2005 through September 2, 2005 the fish marking crew marked the fish in both large raceways. All fish were adipose clipped and an additional 54,085 received coded wire tags. After marking, these fish were treated with a 167ppm formalin flow through drip treatment for 3 days to reduce secondary mycotic infections. The marking inventory at SFH was 798,232 fish at 65 fish per pound. Neil Ring transferred these fish back to PFH on September 7, 2005 through September 8, 2005.

In April of 2005, the fish reared at PFH broke out with IHN resulting in a mortality of 6,094 fry. Eagle Fish Health Lab confirmed this and also found pseudomonad bacteria. The fish received a 10-day treatment of oxytetracycline at the rate of 3.75g/100 pounds. Even though the fish were infected with IHN, the virus eventually ran its course and the mortality dropped to less than 10 fish per day. In June of 2005, these fish were transferred by PFH personnel to the upper hatchery into rearing pond 2.

From May 8 through May 18, 2005 fish marking personnel with the MATS unit marked the fingerling at PFH. All fish were adipose clipped (AD) and an additional 53,661 fish were coded wire tagged (CWT). They marked a total of 278,498 fish, which was 1.0% (2,780 fish) more than Pahsimeroi's inventory. Pahsimeroi Hatchery personnel used the marking inventory for the remainder of the rearing cycle.

To control BKD, the Chinook are administered two 28 day prophylactic-medicated feed treatments during the rearing cycle. With the BY2004 fish, the first medicated feed treatment was administered by SFH personnel in June 2005. The second treatment took place at PFH in September and October of 2005.

Brood Year 2004 smolts were fed 58,705 lbs of feed during their rearing cycle, resulting in a feed conversion of 1.2 (Table 11). The conversion rate was calculated using the original number of summer Chinook minus the number of mortalities observed. It should be noted, however, that predation by river otters and various bird species was observed; therefore many mortalities cannot be quantified.

Common mergansers also invade the ponds in March and April when the fish are beginning to smolt. An attempt was made to obtain a kill permit from the US Fish and Wildlife Service (USFWS) in 2002, but was unsuccessful since no attempt had been made to install bird screens around the ponds. The IPC was made aware of this problem and it will be addressed when construction of the new upper facility hatchery begins in 2006.

Pre-release organosomatic indices can be found in Table 9, feed costs are summarized in Table 10, and production costs are summarized in Table 11. Survival percentages by life stage are summarized in Table 12.

SMOLT RELEASES

Pond 2 screens were pulled on March 13, 2006 and a set of dam boards was removed daily until March 20. Pond 1 screens were pulled on March 20, 2006 and a set of dam boards was

removed daily until March 26, 2006. The fish were not entirely ready to migrate so hatchery personnel had to seine and net the remainder of the fish and the ponds were not emptied until March 30th.

A total of 532,851 smolts were released from pond 1. This release number consisted of 478,845 adipose clipped fish and 54,006 adipose clipped and coded wire tagged fish. Pond 1 smolts averaged 26.0 fpp at the time of release. Additionally, 500 fish from pond 1 were PIT tagged.

A total of 541,100 smolts were released from pond 2. This release number consisted of 487,751 adipose clipped fish and 53,349 adipose clipped and coded wire tagged fish. Pond 2 smolts averaged 19.2 fpp at the time of release.

The individual pond release numbers above bring the total BY2004 smolt release to 1,073,951. The fish size for both ponds combined averages 22.06 fpp (5.07 inches) for a total weight of 48,677 lbs. All fish were classified as Reserve group listed status.

For an overview of the brood stock history and smolt releases throughout PFHs history, see Appendix A.

PAHSIMEROI FISH HEALTH SECTION

Diseases Encountered and Treatment. BY2004 summer Chinook salmon experienced elevated mortalities due to Infectious Hematopoietic Necrosis (IHN). It is assumed that IHN was horizontally transmitted from the BY2003 Chinook which experienced elevated mortalities to IHN just prior to release. As these fish were released from the upper facility ponds, they migrated past the water intake of the lower facility. The virus was typed and found to be the same type as found in the BY2003 salmon. Mortality subsided once the BY2004 salmon were transferred to the upper ponds.

Approximately 26,000 BY2003 Chinook salmon were lost to infestation of *Ichthyophthirius multifiliis*. Once signs of infestation were noticed in BY2004 Chinook salmon, these fish were treated with formalin three times per week at 167 mg/l. Formalin treatments continued until water temperatures cooled in autumn. Because of the early treatment, mortalities due to *Ichthyophthirius* were not experienced.

At preliberation sampling, 3 fish in pond 2 were found to have clinical signs of BKD. A DFAT analysis confirmed the observations. Fish in both rearing ponds were fed OTC medicated feed at 10 g/100 lbs of biomass fed for 14 days just prior to release. Morbidity due to BKD seemed to diminish as the treatment progressed.

Acute Losses. No acute losses were experienced at this facility during the reporting period. Chronic losses were due to IHN infections. A total of 6094 BY2004 Chinook salmon were lost to this viral disease. Losses continued until these fish were moved to the upper facility earthen ponds.

Other Assessments. A cooperative effort between IDFG and IPC to renovate Pahsimeroi Hatchery is now being realized. This project will reduce exposure of young fish to *Myxobolus cerebralis* during the most susceptible period. The hatchery staff of Pahsimeroi and the fisheries office and engineers at Idaho Power should be acknowledged for the job they have done in putting together this renovation project.

At preliberation sampling fat levels were uncharacteristically low for Pahsimeroi summer Chinook salmon. Due to long periods of ice cover, fish could not be fed during parts of December, January, and February. This is most likely the cause of the low mesenteric fat levels in these fish.

Also at preliberation sampling, clinical BKD was found in several fish in Pond 2. Two hundred pairs (400) of adult Chinook salmon were released above the weir at the lower facility to spawn naturally. Many redds have been found above the water intake at the upper facility. It is suspected that the Chinook adults that produced these redds above the water intake were the source of infection for the BY'04 Chinook.

Organosomatic Index See Table 9.

FISH MARKING

On May 8 through May 18, 2005 fish marking personnel with the MATS unit marked the fingerling at PFH. All fish were designated hatchery reserve group listed fish and were adipose clipped. They marked a total of 278,498 fish, which was 1.0% (2780 fish) more than Pahsimeroi's inventory. Also, out of this total, 53,661 fish were coded wired tagged. Pahsimeroi Hatchery personnel used the marking inventory for the remainder of the rearing cycle.

Pahsimeroi summer Chinook at SFH were marked by the MATs unit in late August and early September 2005. All BY04 fish were designated as hatchery reserve group listed fish and were adipose clipped. The total number of fish marked was 798,232 and an additional 54,085 fish were coded wire tagged. Nampa Research personnel are evaluating return rates of fish reared at PFH vs. fish reared at SFH. Additionally, a total of 500 fish from Pond 1 were PIT-tagged on February 23, 2006.

HATCHERY IMPROVEMENTS

- The intake canal was dewatered so the lower facility construction projects could begin.
- Ron Stevens drilling punched three wells at the upper site in preparation for the new hatchery renovation.
- Mike Campbell (IPC) calibrated the new broad crested measuring weir staff gauge at the lower facility intake.
- Two new two-way radios were purchased and installed in hatchery vehicles by Richard Thomas from the Bureau of Microwave Services.
- IPC personnel from Boise and Hagerman visited on April 7, 2005 for an on site evaluation of the installation of new eye wash stations, formalin dispensing areas, and pond sprayers.
- Twelve community service workers worked on hatchery maintenance projects on May 14, 2005.

- The hatchery Micron Clientpro computer quit working and was taken to IT in Boise. The computer is still under warranty and the motherboard was replaced.
- A new manifold was installed around the perimeter of the incubation room to help wash, disinfect, and water harden green eggs.
- Robert Stoddard Excavation dredged the lower facility intake canal and serviced the lift station and dosing tank.
- Two electric roller screens at the upper facility were repaired due to sprocket failure.
- Salmon River Electric finished the installation of 3-phase power to the upper hatchery.
- Hatchery personnel repaired and replaced intake manifold for sprinkler system.
- Legacy Home Furnishings professionally cleaned carpets in both residences and the dormitory.
- New trees and flowers were planted in the dormitory lawn and the flowerbed in front of office.
- IPC shop personnel completed installation of sprinklers and related hardware for the trap and adult holding pens. A control panel was installed allowing continuous operation of these sprinklers when desired. The sprinklers will now operate independently of the remainder of the lawn irrigation system.
- Hatchery staff painted the exterior of the office and spring water pump house buildings.

RECOMMENDATIONS

Recommendations for PFH by IDFG personnel include developing a (SPF) water source to provide pathogen-free water for use in rearing juvenile fish. Due to the presence of whirling disease at PFH, all Chinook eggs are currently sent eyed to SFH for incubation and early rearing. A minimum of 10 cfs of SPF water will be needed to raise one million Chinook to a size of 3.5 inches prior to exposure to river water containing *M. cerebralis*, the causative agent of whirling disease. Complete renovation of the upper hatchery will begin in the spring of 2006.

ACKNOWLEDGEMENTS

We would like to thank Paul Abbott and the staff at IPC for their continued support. We would also like to thank the crew at SFH for all their help with the incubation and early rearing of our fish.

TABLES

Table 1. Pahsimeroi Hatchery Brood Year 2004 summer Chinook salmon run timing.

Date Trapped	Hatchery Males	Natural Males	Total Males	Hatchery Females	Natural Females	Total Females	Total Trapped
16-Jun	1	0	1	3	0	3	4
17-Jun	0	0	0	1	0	1	1
18-Jun	1	0	1	2	0	2	3
19-Jun	2	0	2	2	0	2	4
20-Jun	3	1	4	2	0	2	6
21-Jun	3	3	6	4	1	5	11
22-Jun	11	0	11	10	1	11	22
23-Jun	5	1	6	12	1	13	19
24-Jun	12	3	15	12	1	13	28
25-Jun	9	4	13	25	1	26	39
26-Jun	0	0	0	0	0	0	0
27-Jun	0	0	0	0	0	0	0
28-Jun	59	6	65	76	12	88	153
29-Jun	30	1	31	36	3	39	70
30-Jun	31	2	33	32	0	32	65
1-Jul	37	4	41	21	3	24	65
2-Jul	37	3	40	43	2	45	85
3-Jul	0	0	0	0	0	0	0
4-Jul	0	0	0	0	0	0	0
5-Jul	0	0	0	0	0	0	0
6-Jul	180	6	186	279	10	289	475
7-Jul	0	0	0	0	0	0	0
8-Jul	56	4	60	86	4	90	150
9-Jul	33	1	34	39	1	40	74
10-Jul	0	0	0	0	0	0	0
11-Jul	0	0	0	0	0	0	0
12-Jul	68	3	71	109	6	115	186
13-Jul	65	7	72	74	4	78	150
14-Jul	11	1	12	25	1	26	38
15-Jul	97	1	98	132	6	138	236
16-Jul	58	5	63	94	11	105	168
17-Jul	0	0	0	0	0	0	0
18-Jul	0	0	0	0	0	0	0
19-Jul	113	6	119	128	8	136	255
20-Jul	35	3	38	38	1	39	77
21-Jul	49	2	51	62	2	64	115
22-Jul	23	1	24	29	2	31	55
23-Jul	26	1	27	29	2	31	58
24-Jul	0	0	0	0	0	0	0
25-Jul	0	0	0	0	0	0	0
26-Jul	40	1	41	39	5	44	85
27-Jul	0	0	0	0	0	0	0
28-Jul	0	0	0	0	0	0	0
29-Jul	22	4	26	15	0	15	41

Table 1. Continued.

30-Jul	16	4	20	7	0	7	27
31-Jul	0	0	0	0	0	0	0
1-Aug	0	0	0	0	0	0	0
2-Aug	24	0	24	10	0	10	34
3-Aug	8	0	8	4	0	4	12
4-Aug	0	0	0	0	0	0	0
5-Aug	5	1	6	1	0	1	7
6-Aug	0	0	0	0	0	0	0
7-Aug	0	0	0	0	0	0	0
8-Aug	0	0	0	0	0	0	0
9-Aug	15	2	17	3	0	3	20
10-Aug	0	0	0	0	0	0	0
11-Aug	11	2	13	4	0	4	17
12-Aug	0	0	0	0	0	0	0
13-Aug	9	0	9	3	0	3	12
14-Aug	0	0	0	0	0	0	0
15-Aug	0	0	0	0	0	0	0
16-Aug	0	0	0	0	0	0	0
17-Aug	12	1	13	5	1	6	19
18-Aug	0	0	0	0	0	0	0
19-Aug	0	0	0	0	0	0	0
20-Aug	0	0	0	0	0	0	0
21-Aug	0	0	0	0	0	0	0
22-Aug	0	0	0	0	0	0	0
23-Aug	45	5	50	43	1	44	94
24-Aug	0	0	0	0	0	0	0
25-Aug	2	2	4	1	0	1	5
26-Aug	0	0	0	0	0	0	0
27-Aug	0	0	0	0	0	0	0
28-Aug	0	0	0	0	0	0	0
29-Aug	0	0	0	0	0	0	0
30-Aug	21	0	21	11	0	11	32
31-Aug	0	0	0	0	0	0	0

* Trap not sorted these days

Table 1. Continued.

Date Trapped	Hatchery Males	Natural Males	Total Males	Hatchery Females	Natural Females	Total Females	Total Trapped
1-Sep	0	0	0	0	0	0	0
2-Sep	0	0	0	0	0	0	0
3-Sep	7	1	8	20	3	23	31
4-Sep	0	0	0	0	0	0	0
5-Sep	0	0	0	0	0	0	0
6-Sep	0	0	0	0	0	0	0
7-Sep	0	0	0	0	0	0	0
8-Sep	9	1	10	14	2	16	26
9-Sep	0	0	0	0	0	0	0
10-Sep	0	0	0	0	0	0	0
11-Sep	0	0	0	0	0	0	0
12-Sep	0	0	0	0	0	0	0
13-Sep	69	2	71	59	2	61	132
14-Sep	0	0	0	0	0	0	0
15-Sep	20	0	20	18	0	18	38
16-Sep	0	0	0	0	0	0	0
17-Sep	20	4	24	22	1	23	47
18-Sep	0	0	0	0	0	0	0
19-Sep	0	0	0	0	0	0	0
20-Sep	0	0	0	0	0	0	0
21-Sep	0	0	0	0	0	0	0
22-Sep	8	0	8	19	0	19	27
23-Sep	0	0	0	0	0	0	0
24-Sep	0	0	0	0	0	0	0
25-Sep	0	0	0	0	0	0	0
26-Sep	0	0	0	0	0	0	0
27-Sep	2	1	3	5	2	7	10
28-Sep	2	0	2	1	0	1	3
TOTAL:	1,422	100	1,522	1,709	100	1,809	3,331

* Trap not sorted these days

Table 2. Length frequency of male summer Chinook for Pahsimeroi Fish Hatchery, 2004.

MALES													
TOTAL TRAPPED		AD-CLIP PONDED		AD-CLIP RELEASED		CWT PONDED		CWT RELEASED		UNMARKED PONDED		UNMARKED RELEASED	
FL(CM)	#	FL(CM)	#	FL(CM)	#	FL(CM)	#	FL(CM)	#	FL(CM)	#	FL(CM)	#
41	5	41	5	41	0	41	0	41	0	41	0	41	0
42	2	42	2	42	0	42	0	42	0	42	0	42	0
43	2	43	2	43	0	43	0	43	0	43	0	43	0
44	8	44	5	44	0	44	2	44	0	44	0	44	1
45	7	45	7	45	0	45	0	45	0	45	0	45	0
46	12	46	11	46	0	46	0	46	1	46	0	46	0
47	10	47	9	47	0	47	0	47	0	47	0	47	1
48	18	48	15	48	0	48	2	48	1	48	0	48	0
49	12	49	9	49	0	49	1	49	1	49	0	49	1
50	19	50	15	50	0	50	2	50	0	50	0	50	2
51	23	51	22	51	0	51	1	51	0	51	0	51	0
52	28	52	16	52	0	52	7	52	3	52	0	52	2
53	26	53	23	53	0	53	0	53	2	53	0	53	1
54	11	54	8	54	0	54	2	54	1	54	0	54	0
55	14	55	12	55	0	55	0	55	1	55	0	55	1
56	16	56	11	56	0	56	2	56	2	56	0	56	1
57	25	57	16	57	0	57	2	57	4	57	0	57	3
58	20	58	13	58	0	58	1	58	3	58	0	58	3
59	25	59	17	59	0	59	3	59	2	59	0	59	3
60	28	60	21	60	0	60	4	60	0	60	0	60	3
61	26	61	23	61	0	61	1	61	1	61	0	61	1
62	15	62	10	62	0	62	0	62	4	62	0	62	1
63	19	63	16	63	0	63	1	63	1	63	0	63	1
64	19	64	12	64	0	64	3	64	3	64	0	64	1
65	24	65	17	65	0	65	1	65	3	65	0	65	3
66	19	66	14	66	0	66	0	66	2	66	0	66	3
67	27	67	20	67	0	67	1	67	2	67	0	67	4
68	26	68	22	68	0	68	0	68	1	68	0	68	3
69	40	69	33	69	0	69	2	69	2	69	0	69	3
70	32	70	27	70	0	70	0	70	3	70	0	70	2
71	56	71	49	71	0	71	0	71	5	71	0	71	2
72	43	72	28	72	0	72	3	72	8	72	0	72	4
73	44	73	40	73	0	73	1	73	3	73	0	73	0
74	70	74	56	74	0	74	5	74	6	74	0	74	3
75	88	75	77	75	0	75	0	75	5	75	0	75	6
76	83	76	74	76	0	76	0	76	3	76	0	76	6
77	87	77	66	77	0	77	6	77	10	77	0	77	5
78	77	78	63	78	0	78	0	78	12	78	0	78	2
79	101	79	83	79	0	79	5	79	9	79	0	79	4
80	70	80	59	80	0	80	3	80	6	80	0	80	2
81	73	81	58	81	0	81	1	81	9	81	0	81	5
82	47	82	31	82	0	82	2	82	13	82	0	82	1
83	33	83	23	83	0	83	2	83	3	83	0	83	5
84	23	84	16	84	0	84	1	84	6	84	0	84	0

Table 2. Continued.

85	26	85	22	85	0	85	0	85	2	85	0	85	2
86	4	86	2	86	0	86	0	86	2	86	0	86	0
87	8	87	5	87	0	87	0	87	1	87	0	87	2
88	8	88	7	88	0	88	0	88	0	88	0	88	1
89	3	89	3	89	0	89	0	89	0	89	0	89	0
90	2	90	2	90	0	90	0	90	0	90	0	90	0
91	2	91	2	91	0	91	0	91	0	91	0	91	0
92	1	92	1	92	0	92	0	92	0	92	0	92	0
93	2	93	0	93	0	93	0	93	1	93	0	93	1
94	1	94	0	94	0	94	0	94	0	94	0	94	1
95	2	95	0	95	0	95	0	95	1	95	0	95	1
96	1	96	1	96	0	96	0	96	0	96	0	96	0
97	0	97	0	97	0	97	0	97	0	97	0	97	0
98	1	98	1	98	0	98	0	98	0	98	0	98	0
99	1	99	0	99	0	99	0	99	0	99	0	99	1
100	2	100	2	100	0	100	0	100	0	100	0	100	0
101	0	101	0	101	0	101	0	101	0	101	0	101	0
102	0	102	0	102	0	102	0	102	0	102	0	102	0
103	0	103	0	103	0	103	0	103	0	103	0	103	0
104	0	104	0	104	0	104	0	104	0	104	0	104	0
105	0	105	0	105	0	105	0	105	0	105	0	105	0
106	1	106	1	106	0	106	0	106	0	106	0	106	0
107	0	107	0	107	0	107	0	107	0	107	0	107	0
108	1	108	1	108	0	108	0	108	0	108	0	108	0
109	2	109	1	109	0	109	0	109	0	109	0	109	1
110	0	110	0	110	0	110	0	110	0	110	0	110	0
111	1	111	0	111	0	111	0	111	0	111	0	111	1
TOTALS:	1,522		1,207		0		67		148		0		100

Table 3. Length frequency of female summer Chinook for Pahsimeroi Fish Hatchery, 2004.

FEMALES

TOTAL TRAPPED		AD-CLIP PONDED		AD-CLIP RELEASED		CWT PONDED		CWT RELEASED		UNMARKED PONDED		UNMARKED RELEASED	
FL(CM)	#	FL(CM)	#	FL(CM)	#	FL(CM)	#	FL(CM)	#	FL(CM)	#	FL(CM)	#
55	0	55	0	55	0	55	0	55	0	55	0	55	0
56	0	56	0	56	0	56	0	56	0	56	0	56	0
57	2	57	2	57	0	57	0	57	0	57	0	57	0
58	0	58	0	58	0	58	0	58	0	58	0	58	0
59	0	59	0	59	0	59	0	59	0	59	0	59	0
60	0	60	0	60	0	60	0	60	0	60	0	60	0
61	2	61	2	61	0	61	0	61	0	61	0	61	0
62	1	62	1	62	0	62	0	62	0	62	0	62	0
63	0	63	0	63	0	63	0	63	0	63	0	63	0
64	3	64	2	64	0	64	1	64	0	64	0	64	0
65	3	65	1	65	0	65	0	65	1	65	0	65	1
66	6	66	3	66	0	66	0	66	0	66	0	66	3
67	7	67	7	67	0	67	0	67	0	67	0	67	0
68	4	68	4	68	0	68	0	68	0	68	0	68	0
69	12	69	12	69	0	69	0	69	0	69	0	69	0
70	22	70	12	70	0	70	7	70	2	70	0	70	1
71	35	71	25	71	0	71	5	71	2	71	0	71	3
72	44	72	34	72	0	72	3	72	5	72	0	72	2
73	70	73	47	73	0	73	8	73	9	73	0	73	6
74	102	74	80	74	0	74	14	74	5	74	0	74	3
75	147	75	112	75	0	75	19	75	8	75	0	75	8
76	187	76	137	76	0	76	22	76	18	76	0	76	10
77	180	77	139	77	0	77	18	77	14	77	0	77	9
78	197	78	149	78	0	78	24	78	16	78	0	78	8
79	199	79	156	79	0	79	19	79	12	79	0	79	12
80	169	80	136	80	0	80	12	80	11	80	0	80	10
81	127	81	103	81	0	81	9	81	10	81	0	81	5
82	100	82	80	82	0	82	5	82	11	82	0	82	4
83	71	83	64	83	0	83	0	83	5	83	0	83	2
84	39	84	31	84	0	84	5	84	2	84	0	84	1
85	25	85	22	85	0	85	2	85	0	85	0	85	1
86	14	86	11	86	0	86	1	86	1	86	0	86	1
87	11	87	9	87	0	87	0	87	0	87	0	87	2
88	7	88	3	88	0	88	0	88	0	88	0	88	4
89	5	89	3	89	0	89	0	89	1	89	0	89	1
90	3	90	2	90	0	90	1	90	0	90	0	90	0
91	4	91	3	91	0	91	0	91	0	91	0	91	1
92	3	92	1	92	0	92	1	92	0	92	0	92	1
93	3	93	2	93	0	93	0	93	0	93	0	93	1
94	2	94	2	94	0	94	0	94	0	94	0	94	0
95	0	95	0	95	0	95	0	95	0	95	0	95	0
96	2	96	2	96	0	96	0	96	0	96	0	96	0
97	0	97	0	97	0	97	0	97	0	97	0	97	0
98	0	98	0	98	0	98	0	98	0	98	0	98	0

Table 3. Continued.

99	0	99	0	99	0	99	0	99	0	99	0	99	0
100	0	100	0	100	0	100	0	100	0	100	0	100	0
101	0	101	0	101	0	101	0	101	0	101	0	101	0
102	0	102	0	102	0	102	0	102	0	102	0	102	0
103	0	103	0	103	0	103	0	103	0	103	0	103	0
104	0	104	0	104	0	104	0	104	0	104	0	104	0
105	0	105	0	105	0	105	0	105	0	105	0	105	0
106	1	106	1	106	0	106	0	106	0	106	0	106	0
107	0	107	0	107	0	107	0	107	0	107	0	107	0
108	0	108	0	108	0	108	0	108	0	108	0	108	0
TOTALS:	1,809		1,400		0		176		133		0		100

Table 4. Pahsimeroi Fish Hatchery summer Chinook disposition summary, Brood Year 2004.

Released For Natural Spawning

	Hatchery Origin Adult Males				Hatchery Origin Adult Females				Natural Origin Adult Males		Natural Origin A
	Age 4	Age 4	Age 5	Age 5	Age 4	Age 4	Age 5	Age 5	Age 4	Age 5	Age 4
	Ad-Clip(L)	CWT (L)	Ad-Clip(U)	CWT (L)	Ad-Clip(L)	CWT (L)	Ad-Clip(U)	CWT (L)	Unmarked (L)	Unmarked(L)	Unmarked (L)
Total	0	110	0	5	0	131	0	2	62	9	89
% of Total Rel.	0.0%	77.5%	0.0%	100.0%	0.0%	43.1%	0.0%	40.0%	100.0%	100.0%	100.0%

Ponded For Hatchery Production*

	Hatchery Origin Adult Males				Hatchery Origin Adult Females				Natural Origin Adult Males		Natural Origin A
	Age 4	Age 4	Age 5	Age 5	Age 4	Age 4	Age 5	Age 5	Age 4	Age 5	Age 4
	Ad-Clip(L)	CWT (L)	Ad-Clip(U)	CWT (L)	Ad-Clip(L)	CWT (L)	Ad-Clip(U)	CWT (L)	Unmarked (L)	Unmarked(L)	Unmarked (L)
Total	861	32	29	0	1361	173	39	3	0	0	0
% of Total Pnd.	100.0%	22.5%	100.0%	0.0%	100.0%	56.9%	100.0%	60.0%	0.0%	0.0%	0.0%

Trapping Totals by Gender, Year Class, and Origin for Brood Year 2004

	Hatchery Origin Adult Males				Hatchery Origin Adult Females				Natural Origin Adult Males		Natural Origin A
	Age 4	Age 4	Age 5	Age 5	Age 4	Age 4	Age 5	Age 5	Age 4	Age 5	Age 4
	Ad-Clip(L)	CWT (L)	Ad-Clip(U)	CWT (L)	Ad-Clip(L)	CWT (L)	Ad-Clip(U)	CWT (L)	Unmarked (L)	Unmarked(L)	Unmarked (L)
Total	861	142	29	5	1361	304	39	5	62	9	89
% of Total Trpd.	25.8%	4.3%	0.9%	0.2%	40.9%	9.1%	1.2%	0.2%	1.9%	0.3%	2.7%

Trap Totals by Origin for Brood Year 2004

	Hatchery	Hatchery	Total	Natural Origin	Natural Origin	Total Natural	Hatchery	Natural	Total Jacks	Total Chinook
	Adult Males	Adult Females	Hatchery Adults	Adult Males	Adult Females	Origin Adults	Jacks	Jacks		Trapped
Total	1037	1709	2746	71	100	171	385	29	414	3,331
% of Total Trpd.	31.1%	51.3%	82.4%	2.1%	3.0%	5.1%	11.6%	0.9%	12.4%	100.0%

* Includes Fish Killed

Table 5. Pahsimeroi summer Chinook coded wire tag summary, Brood Year 2004.

DATE COLLECTED	SEX	FLOY TAG	FL(CM)	CLIPS OR MARKS	SNOUT BAG NUMBER	COMMENTS
14-Jul	f	n/a	82	cwt	04ic1	killed in trap-not floy tagged
19-Jul	f	n/a	76	cwt	04ic2	killed in trap-not floy tagged
19-Jul	f	n/a	76	cwt	04ic3	killed in trap-not floy tagged
19-Jul	f	n/a	78	cwt	04ic4	killed in trap-not floy tagged
19-Jul	f	n/a	81	cwt	04ic5	killed in trap-not floy tagged
19-Jul	f	n/a	79	cwt	04ic6	killed in trap-not floy tagged
19-Jul	f	n/a	71	cwt	04ic8	killed in trap-not floy tagged
19-Jul	f	n/a	76	cwt	04ic9	killed in trap-not floy tagged
20-Jul	f	n/a	76	cwt	04ic10	killed in trap-not floy tagged
20-Jul	f	n/a	85	cwt	04ic11	killed in trap-not floy tagged
20-Jul	f	n/a	61	cwt	04ic12	killed in trap-not floy tagged
20-Jul	f	n/a	77	cwt	04ic13	killed in trap-not floy tagged
20-Jul	f	n/a	81	cwt	04ic14	killed in trap-not floy tagged
20-Jul	f	n/a	77	cwt	04ic15	killed in trap-not floy tagged
20-Jul	f	n/a	86	cwt	04ic16	killed in trap-not floy tagged
20-Jul	f	n/a	80	cwt	04ic18	killed in trap-not floy tagged
20-Jul	f	n/a	85	cwt	04ic19	killed in trap-not floy tagged
20-Jul	f	n/a	78	cwt	04ic20	killed in trap-not floy tagged
20-Jul	f	n/a	71	cwt	04ic21	killed in trap-not floy tagged
20-Jul	f	n/a	76	cwt	04ic22	killed in trap-not floy tagged
20-Jul	f	n/a	76	cwt	04ic23	killed in trap-not floy tagged
20-Jul	f	n/a	78	cwt	04ic24	killed in trap-not floy tagged
20-Jul	f	n/a	78	cwt	04ic25	killed in trap-not floy tagged
20-Jul	f	n/a	79	cwt	04ic26	killed in trap-not floy tagged
20-Jul	f	n/a	77	cwt	04ic27	killed in trap-not floy tagged
20-Jul	f	n/a	75	cwt	04ic28	killed in trap-not floy tagged
21-Jul	f	n/a	78	cwt	04ic29	killed in trap-not floy tagged
21-Jul	f	n/a	85	cwt	04ic30	killed in trap-not floy tagged
21-Jul	f	n/a	80	cwt	04ic48	killed in trap-not floy tagged
21-Jul	m	n/a	80	cwt	04ic49	killed in trap-not floy tagged
21-Jul	f	n/a	61	cwt	04ic50	killed in trap-not floy tagged
21-Jul	f	n/a	75	cwt	04ic51	killed in trap-not floy tagged
21-Jul	f	n/a	79	cwt	04ic52	killed in trap-not floy tagged
21-Jul	f	n/a	80	cwt	04ic53	killed in trap-not floy tagged
21-Jul	f	n/a	80	cwt	04ic54	killed in trap-not floy tagged
21-Jul	f	n/a	81	cwt	04ic55	killed in trap-not floy tagged
21-Jul	f	n/a	78	cwt	04ic56	killed in trap-not floy tagged
21-Jul	f	n/a	74	cwt	04ic57	killed in trap-not floy tagged
21-Jul	f	n/a	84	cwt	04ic58	killed in trap-not floy tagged
21-Jul	f	n/a	82	cwt	04ic59	killed in trap-not floy tagged
21-Jul	f	n/a	77	cwt	04ic60	killed in trap-not floy tagged
22-Jul	f	n/a	78	cwt	04ic41	killed in trap-not floy tagged
22-Jul	m	n/a	58	cwt	04ic42	killed in trap-not floy tagged
22-Jul	m	n/a	55	cwt	04ic43	killed in trap-not floy tagged

Table 5. Continued.

22-Jul	f	n/a	72	cwt	04ic44	killed in trap-not floy tagged
22-Jul	f	n/a	80	cwt	04ic45	killed in trap-not floy tagged
22-Jul	f	n/a	72	cwt	04ic46	killed in trap-not floy tagged
22-Jul	f	n/a	78	cwt	04ic47	killed in trap-not floy tagged
23-Jul	m	n/a	44	cwt	04ic40	killed in trap-not floy tagged
26-Jul	f	n/a	77	cwt	04ic17	killed in trap-not floy tagged
26-Jul	m	n/a	70	cwt	04ic31	killed in trap-not floy tagged
26-Jul	m	n/a	71	cwt	04ic32	killed in trap-not floy tagged
26-Jul	f	n/a	77	cwt	04ic33	killed in trap-not floy tagged
26-Jul	f	n/a	78	cwt	04ic34	killed in trap-not floy tagged
26-Jul	m	n/a	61	cwt	04ic35	killed in trap-not floy tagged
26-Jul	f	n/a	80	cwt	04ic36	killed in trap-not floy tagged
26-Jul	m	n/a	58	cwt	04ic37	killed in trap-not floy tagged
26-Jul	f	n/a	79	cwt	04ic38	killed in trap-not floy tagged
26-Jul	f	n/a	80	cwt	04ic39	killed in trap-not floy tagged
26-Jul	f	n/a	85	cwt	04ic61	killed in trap-not floy tagged
26-Jul	f	n/a	75	cwt	04ic62	killed in trap-not floy tagged
26-Jul	f	n/a	76	cwt	04ic63	killed in trap-not floy tagged
26-Jul	f	n/a	79	cwt	04ic64	killed in trap-not floy tagged
26-Jul	m	n/a	66	cwt	04ic65	killed in trap-not floy tagged
26-Jul	f	n/a	76	cwt	04ic66	killed in trap-not floy tagged
26-Jul	f	n/a	75	cwt	04ic67	killed in trap-not floy tagged
26-Jul	m	n/a	61	cwt	04ic68	killed in trap-not floy tagged
26-Jul	f	n/a	76	cwt	04ic69	killed in trap-not floy tagged
26-Jul	f	n/a	80	cwt	04ic70	killed in trap-not floy tagged
26-Jul	f	n/a	75	cwt	04ic71	killed in trap-not floy tagged
26-Jul	m	n/a	58	cwt	04ic72	killed in trap-not floy tagged
26-Jul	m	n/a	60	cwt	04ic73	killed in trap-not floy tagged
26-Jul	f	n/a	76	cwt	04ic74	killed in trap-not floy tagged
26-Jul	m	n/a	52	cwt	04ic75	killed in trap-not floy tagged
26-Jul	f	n/a	74	cwt	04ic76	killed in trap-not floy tagged
26-Jul	m	n/a	52	cwt	04ic77	killed in trap-not floy tagged
29-Jul	f	n/a	80	cwt	04ic78	killed in trap-not floy tagged
30-Jul	f	n/a	85	cwt	04ic79	killed in trap-not floy tagged
30-Jul	m	n/a	60	cwt	04ic80	killed in trap-not floy tagged
30-Jul	f	n/a	75	cwt	04ic81	killed in trap-not floy tagged
30-Jul	f	n/a	82	cwt	04ic82	killed in trap-not floy tagged
30-Jul	f	n/a	79	cwt	04ic83	killed in trap-not floy tagged
13-Aug	m	n/a	50	cwt	04ic84	killed in trap-not floy tagged
21-Aug	f	n/a	80	cwt	04ic85	pre-spawn mort
23-Aug	f	n/a	n/a	cwt	04ic86	pre-spawn mort
23-Aug	m	n/a	52	cwt	04ic87	killed in trap-not floy tagged
30-Aug	f	28	90	cwt	04ic88	
30-Aug	f	30	73	cwt	04ic89	
30-Aug	f	201	78	cwt	04ic90	
30-Aug	f	126	77	cwt	04ic91	
30-Aug	f	1322	78	cwt	04ic94	
30-Aug	f	1325	76	cwt	04ic95	

Table 5. Continued.

DATE		FLOY		CLIPS OR	SNOUT BAG	
COLLECTED	SEX	TAG	FL(CM)	MARKS	NUMBER	COMMENTS
30-Aug	f	76	71	cwt	04ic96	
30-Aug	m	missing	86	cwt	04ic92	
30-Aug	m	292	74	cwt	04ic93	
30-Aug	m	missing	56	cwt	04ic97	
30-Aug	m	missing	82	cwt	04ic98	
30-Aug	m	78	50	cwt	04ic99	
30-Aug	m	204	72	cwt	04ic100	
2-Sep	f	1728	79	cwt	04ic102	
2-Sep	f	1229	84	cwt	04ic101	
2-Sep	f	1543	78	cwt	04ic103	
2-Sep	f	1731	78	cwt	04ic104	
2-Sep	f	1541	78	cwt	04ic108	
2-Sep	f	1627	79	cwt	04ic109	
2-Sep	f	1737	84	cwt	04ic110	
2-Sep	f	1184	81	cwt	04ic111	
2-Sep	f	319	71	cwt	04ic112	
2-Sep	m	51	79	cwt	04ic105	
2-Sep	m	7	74	cwt	04ic106	
2-Sep	m	13	74	cwt	04ic107	
2-Sep	m	1734	74	cwt	04ic113	
7-Sep	f	2	92	cwt	04ic114	
7-Sep	f	missing	79	cwt	04ic115	
7-Sep	f	missing	84	cwt	04ic116	
7-Sep	f	1549	76	cwt	04ic117	
7-Sep	m	203	77	cwt	04ic119	
7-Sep	f	1382	75	cwt	04ic118	
7-Sep	f	1311	74	cwt	04ic120	
7-Sep	f	1233	75	cwt	04ic121	
7-Sep	f	1577	78	cwt	04ic122	
7-Sep	f	1765	81	cwt	04ic123	
7-Sep	f	1313	77	cwt	04ic124	
7-Sep	f	14	74	cwt	04ic125	
7-Sep	m	293	52	cwt	04ic126	
7-Sep	f	1236	75	cwt	04ic127	
7-Sep	f	missing	80	cwt	04ic128	
7-Sep	f	missing	74	cwt	04ic129	

Table 5. Continued

DATE COLLECTED	SEX	FLOY TAG	FL(CM)	CLIPS OR MARKS	SNOUT BAG NUMBER	COMMENTS
7-Sep	f	missing	78	cwt	04ic130	
7-Sep	f	1242	86	cwt	04ic131	
7-Sep	f	1152	74	cwt	04ic132	
7-Sep	f	1531	73	cwt	04ic133	
7-Sep	f	1757	76	cwt	04ic134	
7-Sep	f	1237	76	cwt	04ic135	
7-Sep	m	missing	76	cwt	04ic136	
7-Sep	f	1754	79	cwt	04ic137	
7-Sep	f	31	74	cwt	04ic138	
7-Sep	f	1310	70	cwt	04ic139	
7-Sep	f	1428	76	cwt	04ic140	
7-Sep	m	1569	52	cwt	04ic141	
9-Sep	f	1235	79	cwt	04ic142	
9-Sep	f	1153	79	cwt	04ic143	
9-Sep	f	missing	77	cwt	04ic144	
9-Sep	f	1316	78	cwt	04ic145	
9-Sep	f	107	72	cwt	04ic146	
9-Sep	f	missing	76	cwt	04ic147	
9-Sep	f	1247	81	cwt	04ic148	
9-Sep	f	1318	76	cwt	04ic149	
9-Sep	f	1378	79	cwt	04ic150	
9-Sep	f	missing	78	cwt	04ic 151	
9-Sep	f	1438	77	cwt	04ic152	
9-Sep	f	1319	75	cwt	04ic153	
9-Sep	f	300	79	cwt	04ic154	
9-Sep	f	1241	80	cwt	04ic155	
9-Sep	f	1544	72	cwt	04ic158	
9-Sep	f	1315	73	cwt	04ic159	
9-Sep	f	1474	82	cwt	o4ic160	
9-Sep	f	1163	76	cwt	04ic161	
9-Sep	m	1598	72	cwt	04ic156	
9-Sep	m	1232	79	cwt	04ic157	
9-Sep	m	1156	77	cwt	04ic162	
9-Sep	m	1439	48	cwt	04ic163	
9-Sep	m	missing	61	cwt	04ic164	
9-Sep	m	1713	65	cwt	04ic165	
13-Sep	m	n/a	55	cwt	04ic166	
13-Sep	m	missing	64	cwt	04ic167	pre-spawn mort
13-Sep	m	n/a	54	cwt	04ic168	
13-Sep	f	6	74	cwt	04ic169	
13-Sep	f	1431	80	cwt	04ic171	
13-Sep	f	1306	81	cwt	04ic172	
13-Sep	f	missing	81	cwt	04ic173	
13-Sep	f	1159	70	cwt	04ic174	

Table 5. Continued.

13-Sep	f	1682	77	cwt	04ic177	
13-Sep	f	128	75	cwt	04ic178	
13-Sep	m	missing	60	cwt	04ic170	
13-Sep	m	1248	73	cwt	04ic175	
13-Sep	m	1192	70	cwt	04ic176	
16-Sep	f	1376	75	cwt	04ic180	
16-Sep	f	missing	76	cwt	04ic181	
16-Sep	f	1243	70	cwt	04ic182	
16-Sep	f	1550	76	cwt	04ic184	
16-Sep	f	315	79	cwt	04ic185	
16-Sep	f	1427	81	cwt	04ic186	
16-Sep	f	missing	72	cwt	04ic187	
16-Sep	f	1573	77	cwt	04ic188	
16-Sep	f	1324	80	cwt	04ic189	
16-Sep	f	1321	80	cwt	04ic190	
16-Sep	f	1158	75	cwt	o4ic193	
16-Sep	f	1154	79	cwt	04ic194	
16-Sep	f	202	77	cwt	04ic196	
16-Sep	f	79	78	cwt	04ic197	
16-Sep	f	1151	76	cwt	04ic198	
16-Sep	f	1746	80	cwt	04ic199	
16-Sep	f	77	73	cwt	04ic200	
16-Sep	m	1317	81	cwt	04ic183	
16-Sep	m	1602	73	cwt	04ic179	
16-Sep	m	1703	67	cwt	04ic191	
16-Sep	m	missing	79	cwt	04ic192	
16-Sep	m	missing	82	cwt	04ic195	
16-Sep	m	1379	74	cwt	04ic201	
20-Sep	f	1642	81	cwt	04ic202	
20-Sep	f	43	78	cwt	04ic203	
20-Sep	f	1548	64	cwt	04ic204	
20-Sep	f	1588	74	cwt	04ic205	
20-Sep	f	missing	82	cwt	04ic206	
20-Sep	m	1703	67	cwt	04ic191	
20-Sep	m	missing	79	cwt	04ic192	
20-Sep	f	1975	85	cwt	04ic207	
20-Sep	f	1164	77	cwt	04ic208	
20-Sep	f	missing	83	cwt	04ic209	
20-Sep	f	missing	85	cwt	04ic210	
20-Sep	f	1540	75	cwt	04ic211	
20-Sep	f	1302	74	cwt	04ic212	
20-Sep	f	1539	78	cwt	04ic213	
20-Sep	f	1303	78	cwt	04ic214	
20-Sep	f	1460	74	cwt	04ic215	

Table 5. Continued.

DATE		FLOY		CLIPS OR	SNOUT BAG	
COLLECTED	SEX	TAG	FL(CM)	MARKS	NUMBER	COMMENTS
20-Sep	f	1320	79	cwt	04ic216	
20-Sep	f	1161	78	cwt	04ic217	
20-Sep	f	104	70	cwt	04ic218	
20-Sep	f	1238	77	cwt	04ic219	
20-Sep	f	1613	78	cwt	04ic220	
20-Sep	f	missing	74	cwt	04ic221	
20-Sep	f	missing	77	cwt	04ic222	
20-Sep	f	missing	69	cwt	04ic223	
20-Sep	f	missing	82	cwt	04ic224	
23-Sep	f	1432	85	cwt	04ic225	
23-Sep	f	missing	78	cwt	04ic227	
23-Sep	f	1566	77	cwt	04ic231	
23-Sep	f	1576	78	cwt	04ic230	
23-Sep	m	missing	80	cwt	04ic226	
23-Sep	m	1981	82	cwt	04ic228	
23-Sep	m	207	79	cwt	04ic229	
23-Sep	m	missing	80	cwt	04ic232	
23-Sep	m	missing	78	cwt	04ic233	
23-Sep	m	missing	81	cwt	04ic234	
27-Sep	m	missing	83	cwt	04ic235	
27-Sep	m	missing	78	cwt	04ic236	
27-Sep	m	missing	56	cwt	04ic237	
27-Sep	m	1202	52	cwt	04ic238	
27-Sep	m	missing	80	cwt	04ic239	
27-Sep	m	missing	81	cwt	04ic240	
27-Sep	m	1521	69	cwt	04ic241	
27-Sep	m	missing	84	cwt	04ic242	
28-Sep	m	missing	50	cwt	04ic243	
28-Sep	m	1308	84	cwt	04ic244	
28-Sep	m	1593	80	cwt	04ic245	
28-Sep	m	missing	78	cwt	04ic246	
28-Sep	f	missing	73	cwt	04ic250	
28-Sep	m	missing	60	cwt	04ic251	
28-Sep	m	missing	50	cwt	04ic256	
28-Sep	m	1601	73	cwt	04ic257	

Table 6. Pahsimeroi summer Chinook disposition summary, Brood Year 2004.

Disposition	Males	Females
Trap Mortality	0	6
Ponded-Pre-Spawn Mortality	13	8
Surplus-Killed for Charities and Tribes*	756	1,046
Surplus Females in Holding-Killed Without Spawning	0	148
Spawned-Eyed Eggs Shipped to Sawtooth Hatchery	0	298
Females Spawned-Eggs Culled	0	70
Released Above Weir	248	233
Mini-Jacks Killed for Nampa Research*	12	0
Males Spawned and Killed	347	0
Males- Died in Holding After 30 percent Spawning Completed	146	0
Total Chinook Trapped Brood Year 2004 Pahsimeroi Hatchery	1,522	1,809

* All other carcasses stored in refrigerated trailer and taken to rendering plant.

Table 7. Brood Year 2004 Egg Shipment Tracking Record Pahsimeroi Hatchery summer Chinook.

LOT	SPAWN	TOTAL FEMALE	TOTAL FEMALES	EYED EGGS	EYED EGGS	BAD	TOTALGREEN	PERCENT	AVERAGE	TOTAL EGGS
NO.	DATE	SPAWNED	SHIPPED	SHIPPED	OBTAINED	EGGS	EGGS	EYE-UP	FECUNDITY	CULLED
1	8/30/04	25	25	93,341	93,341	26,343	119,684	78.0%	4,787	
2	9/2/04	22	22	71,172	71,172	25,617	96,789	73.5%	4,400	
3	9/7/04	52	52	194,923	194,923	27,502	222,425	87.6%	4,277	
4	9/9/04	52	50	219,774	219,774	15,766	235,540	93.3%	4,530	9,059
5	9/13/04	63	55	160,491	210,560	37,254	247,814	85.0%	3,934	81,537
6	9/16/04	60	39	163,280	260,147	15,628	275,775	91.3%	4,596	96,521
7	9/20/04	36	32	148,749	148,749	13,866	162,615	91.5%	4,517	18,068
8	9/23/04	36	11	50,594	163,512	7,155	170,667	87.6%	4,741	118,519
9	9/27/04	22	12	53,877	86,150	3,054	89,204	94.6%	4,055	40,382
TOTALS		368	298	1,156,201	1,448,328	172,185	1,620,513	86.9%	4,404	364,087

Table 8. Pahsimeroi Fish Hatchery summer Chinook cryopreservation sampling, Brood Year 2004.

Date	Sample #	Fork length (cm)	Scales taken (y/n)	Tissue sample (y/n)	Hatchery ID	Tags (type)	Fin Clip (type)	Listing Status	Remarks	Genebank #	WSU motility %	WSU # of 0.5 ml straws	UI motility %	UI # of 0.5 ml straws
9/28/2004	NPT-164-04	78	n	y			ad	listed	2 bags	246	90	20	60	19
9/28/2004	NPT-165-04	69	n	y			ad	listed	2 bags	247	90	20	70	20
9/28/2004	NPT-166-04	65	n	y			ad	listed	2 bags	248	70	20	70	18
9/28/2004	NPT-167-04	72	n	y	15	floy	ad	listed	2 bags	249	80	20	50	19
9/28/2004	NPT-168-04	90	n	y			ad	unlisted	2 bags	250	40	20	80	20
9/28/2004	NPT-169-04	53	n	y			ad	listed	2 bags	251	?	20	30	19
9/28/2004	NPT-170-04	62	n	y	1966	floy	ad	listed	2 bags	252	90	20	70	20
9/28/2004	NPT-171-04	84	n	y			ad	unlisted	2 bags	253	80	20	80	20
9/28/2004	NPT-172-04	93	n	y			ad	unlisted	2 bags	254	90	20	80	20
9/28/2004	NPT-173-04	74	n	y	1601	floy		listed	2 bags, ISS sup fish	255	80	20	70	20
9/28/2004	NPT-174-04	58	n	y	1813	floy	ad	listed	1 bag	256	UI		90	10
9/28/2004	NPT-175-04	64	n	y			ad	listed	2 bags	257	90	20	70	20
9/28/2004	NPT-176-04	76	n	y	91	floy	ad	listed	2 bags	258	80	20	20	16
9/28/2004	NPT-177-04	76	n	y			ad	listed	2 bags	259	50	20	80	20
9/28/2004	NPT-178-04	84	n	y	1262	floy	ad	unlisted	2 bags	260	90	20	60	18
9/28/2004	NPT-179-04	76	n	y				listed	2 bags, ISS sup fish	261	UI		70	20
9/28/2004	NPT-180-04	85	n	y			ad	unlisted	2 bags	262	90	20	60	20
9/28/2004	NPT-181-04	82	n	y			ad	listed	2 bags	263	70	20	90	20
9/28/2004	NPT-182-04	85	n	y	1308	floy		listed	1 bag, ISS sup fish	264	50	20	(WSU)	
9/28/2004	NPT-183-04	85	n	y			ad	unlisted	2 bags	265	40	20	70	19

Table 9. Pahsimeroi Fish Hatchery Fish Pathology Report, Brood Year 2004.

SUMMARY OF FISH AUTOPSY			
ACCESSION NO:	06-041	LOCATION:	Pahsimeroi Hatchery
SPECIES:	Chinook Summer	AUTOPSY DATE:	2/16/2006
STRAIN:	Pahsimeroi	AGE:	Juv
UNIT:	P1,P2	SAMPLE SIZE:	20
REASON FOR AUTOPSY:	prelib.		
INVESTIGATOR(S):	Munson		
REMARKS:			

	MEAN	STANDARD DEVIATION	COEFFICIENT OF VARIATION
LENGTH	0.00	0.00	0.00
WEIGHT	0.00	0.00	0.00
KTL*:	0.00	0.00	0.00
CTL:**	0.00	0.00	0.00
HEMATOCRIT:	43.65	3.91	0.09
LEUCOCRIT:	0.00	0.00	0.00
SERUM PROTEIN:	5.58	1.23	0.22

*EXPRESSED AT KTL TIMES 10 TO THE FIFTH POWER
**CONVERTED FROM KTL;EXPRESSED AS CTL TIMES 10 TO THE FOURTH POWER

EYES		GILLS		PSEUDO BRANCHES		THYMUS		FAT		SPLEEN		GUT		HIND KIDNEY		LIVER		BILE	
N	20	N	20	N	20	0	20	0	7	B	0	0	20	N	17	A	0	0	7
B1	0	F	0	S	0	1	0	1	12	R	20	1	0	S	3	B	20	1	12
B2	0	C	0	L	0	2	0	2	1	G	0	2	0	M	0	C	0	2	1
E1	0	M	0	S&L	0			3	0	NO	0			G	0	D	0	3	0
E2	0	P	0	I	0			4	0	E	0			U	0	E	0		
H1	0	OT	0	OT	0	Mean=0.00				OT	0	Mean=0.00		T	0	F	0		
H2	0			O	0			Mean=1.0								OT	0	Mean=0.7	
M1	0																		
M2	0																		
OT	0																		

SUMMARY OF NORMALS									
20	20	20	20	20	20	20	20	20	20

SEX	M:0	F:0	U:0
-----	-----	-----	-----

GENERAL REMARKS

FINS: GONADS:
SKIN: OTHER: BKD Lesions in three fish from pond 2

Table 10. Brood Year 2004 feed summary for Pahsimeroi Fish Hatchery.

Feed Type/Size	Total Pounds Fed	Cost per Pound	Total Feed Cost
Skretting #0 Crumble	396.0	\$0.99	\$392.04
Skretting #1 Crumble	277.5	\$0.99	\$274.73
Skretting #2 Crumble	704.0	\$0.99	\$696.96
Skretting #2 Crumble 2%TM-100	308.0	\$1.90	\$583.66
#2 Bio-Diet Starter	440.0	\$1.14	\$501.60
#3 Bio-Diet Starter	1,496.0	\$1.14	\$1,705.44
1.0mm Bio-Diet Grower	484.0	\$0.95	\$459.80
1.3 mm Bio-Diet Grower	1,056.0	\$0.87	\$918.72
1.3 mm Bio-Diet Grower AQM-100	2,728.0	\$1.86	\$5,074.08
1.5 mm Bio-Diet Grower	4,532.0	\$0.79	\$3,580.28
Bio-Diet 2.0 mm AQM-100	5,280.0	\$2.46	\$12,962.40
Bio-Diet Grower 2.0 mm	12,628.0	\$0.75	\$9,471.00
Bio-Diet Grower 2.5 mm	4,840.0	\$0.73	\$3,533.20
Bio-Diet Grower 2.5 mm AQM-100	6,512.0	\$2.46	\$15,986.96
Bio-Diet Grower 3.0 mm	8,443.0	\$0.70	\$5,910.10
Skretting Nutra Fry ProActive 2.0 mm	660.0	\$0.77	\$508.20
Skretting Nutra Fry 2.0 mm TM-100	7,920.0	\$1.26	\$9,939.60
Totals:	58,704.5		\$72,498.77

Table 11. Brood Year 2004 production costs, Pahsimeroi Hatchery

Number of fish	Pounds of feed	Cost of Feed	Pounds of Fish	Conversion	Total Budget	Cost per Thousand Fish	Cost per Pound of Fish
1,073,951	58,705	\$72,499.00	48,677	1.20	* \$918,214.18	\$854.98	\$18.86

*Does not include capital outlay

Table12. Brood Year 2004 smolt survival by life state, Pahsimeroi Hatchery

Life Stages		Numbers		Survival Percentages From Eyed Eggs
Green Eggs		1,620,513		N/A
Egg Pickoff		172,185		N/A
Eyed Eggs		1,448,428		N/A
Estimated Eyed Eggs Culled		292,227		N/A
Eyed Eggs Shipped		1,156,201		N/A
Alevin Pickoff		46,000		N/A
Fry Poned		1,110,201		96.0%
Fry Mortality		34,561		
Fingerling Poned		1,075,640		93.0%
Fingerling Mortality		1,689		
Smolts Released		1,073,951		92.9%

FIGURES

Figure 1. Brood Year 2004 summer Chinook salmon run timing.

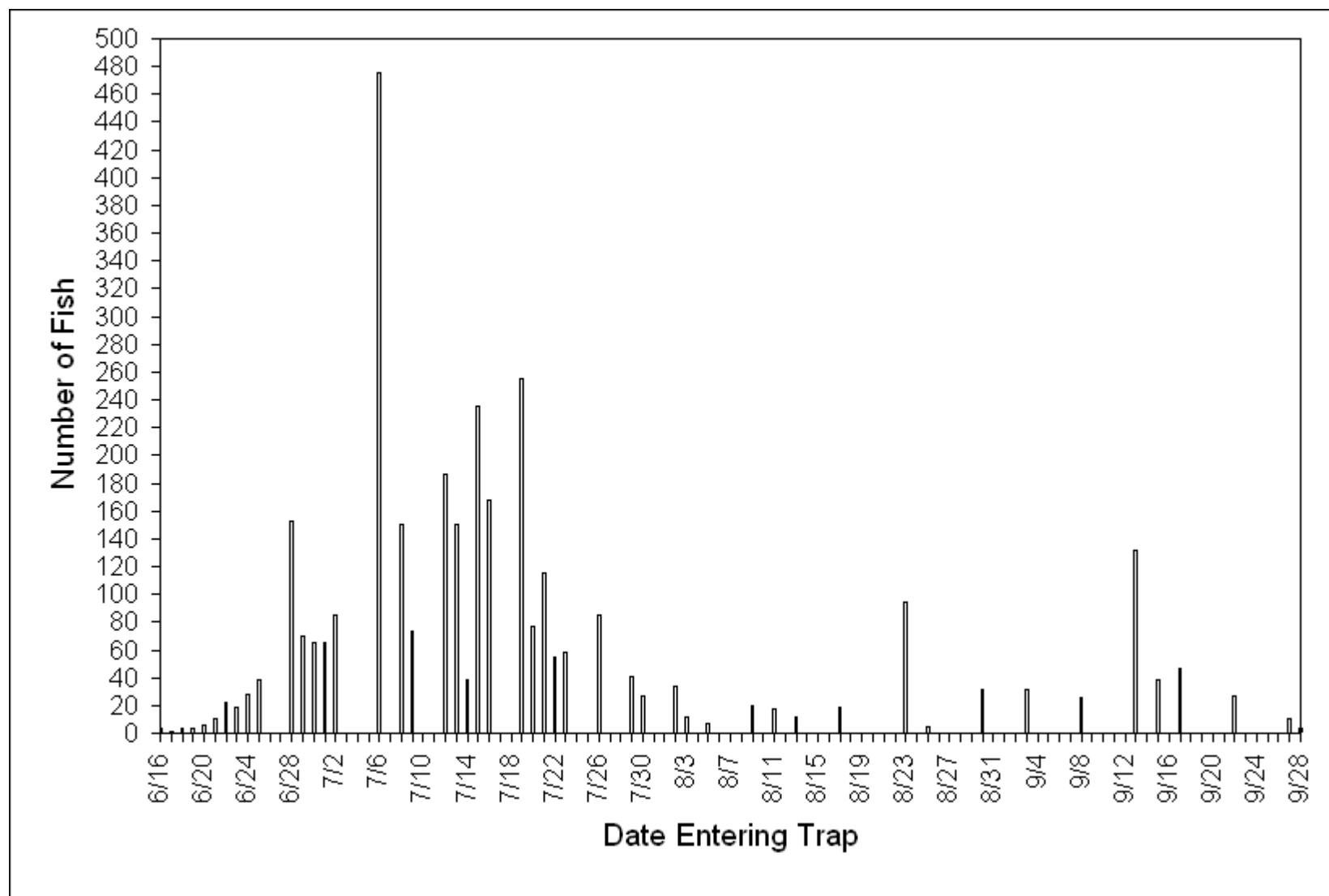


Figure 1-A. Brood Year 2004 natural origin male summer Chinook run timing.

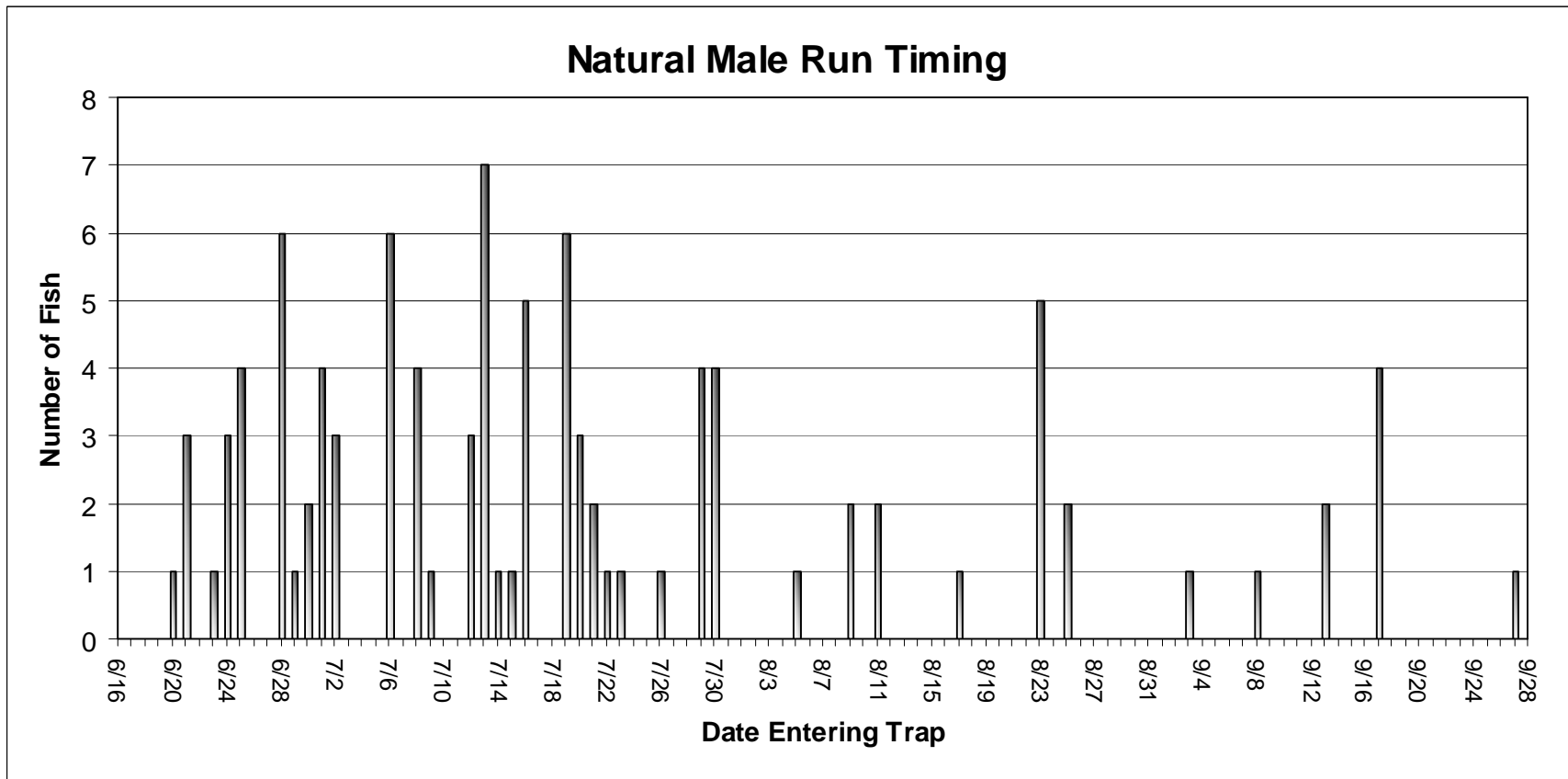


Figure 1-B. Brood Year 2004 natural origin female summer Chinook run timing.

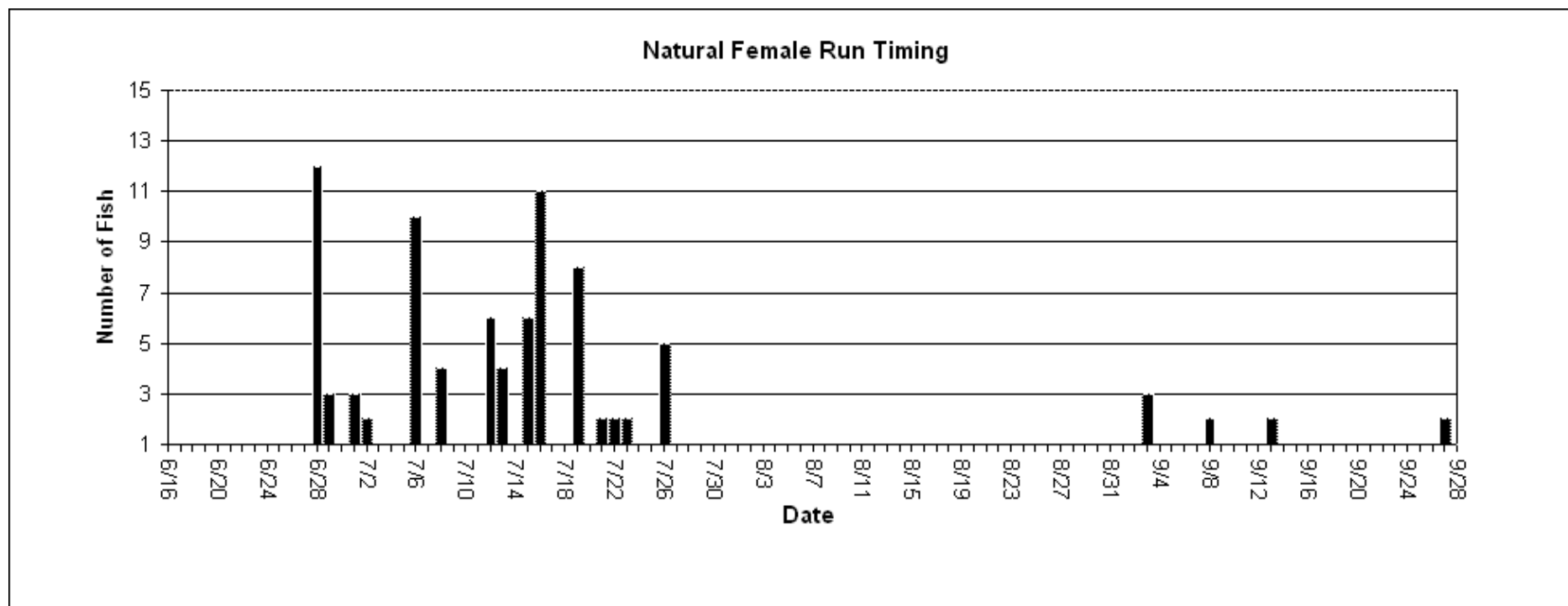
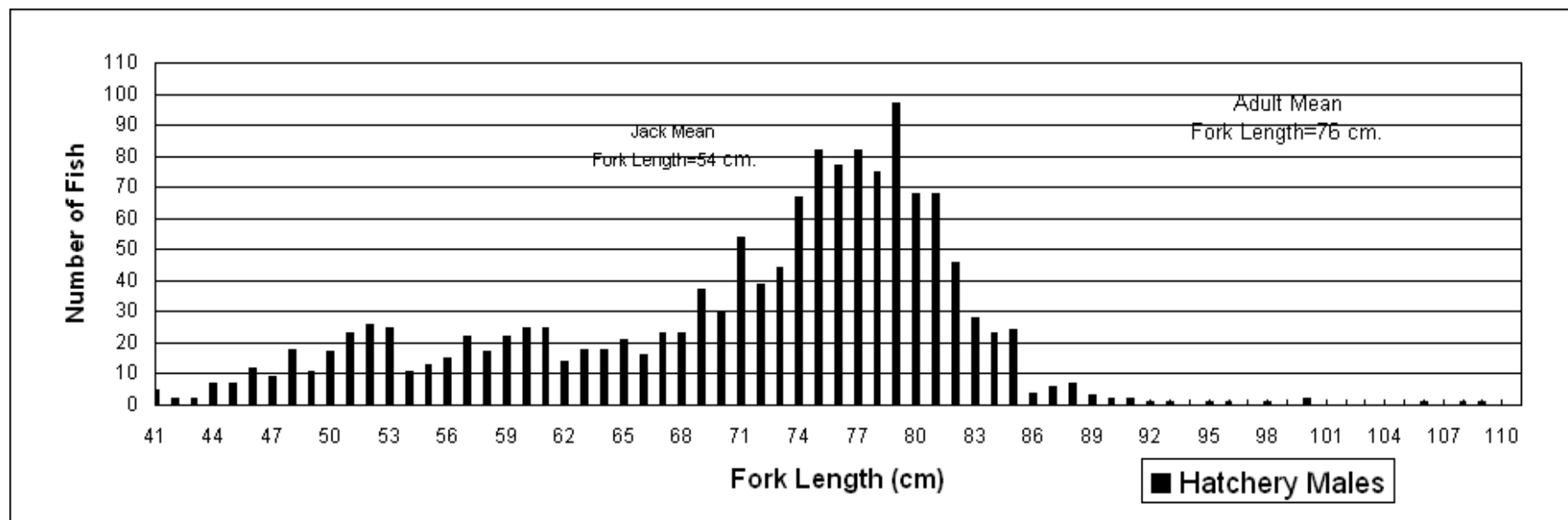


Figure 2. Length frequency of hatchery-origin summer Chinook salmon, Brood Year 2004.



* 41 cm. length category includes one 35 cm. and three 39 cm. "mini-jacks"

** All fish less than or equal to 44 cm. considered "mini-jacks".

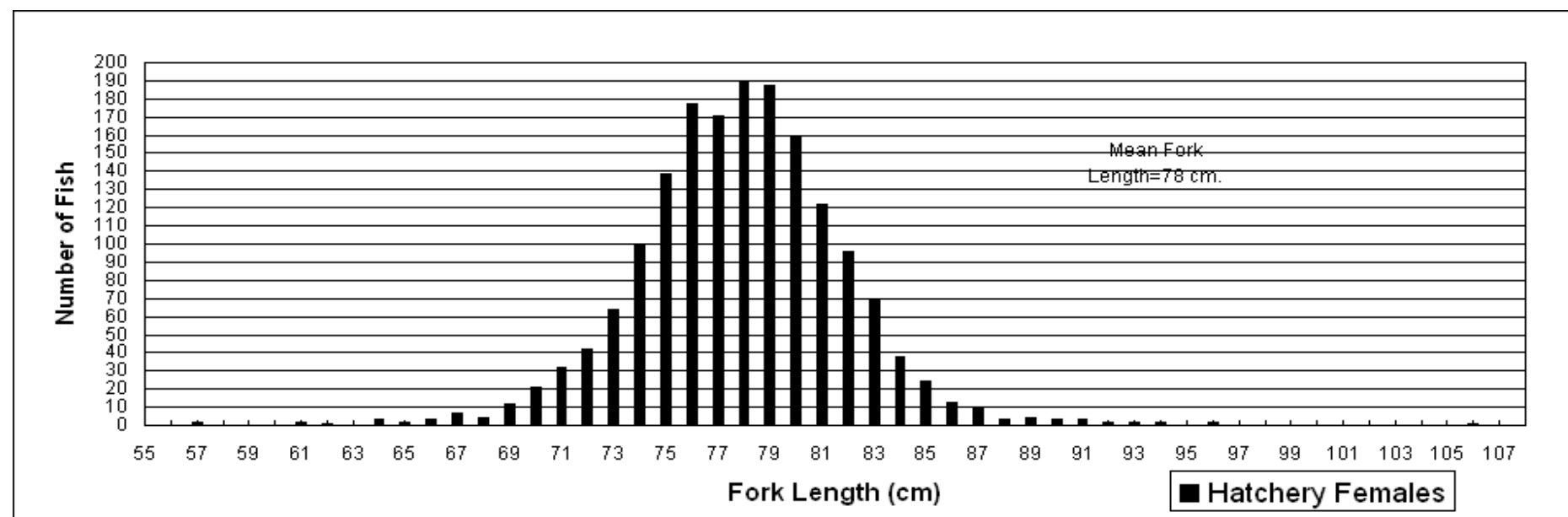


Figure 3. Length frequency of natural-origin summer Chinook salmon, Brood Year 2004.

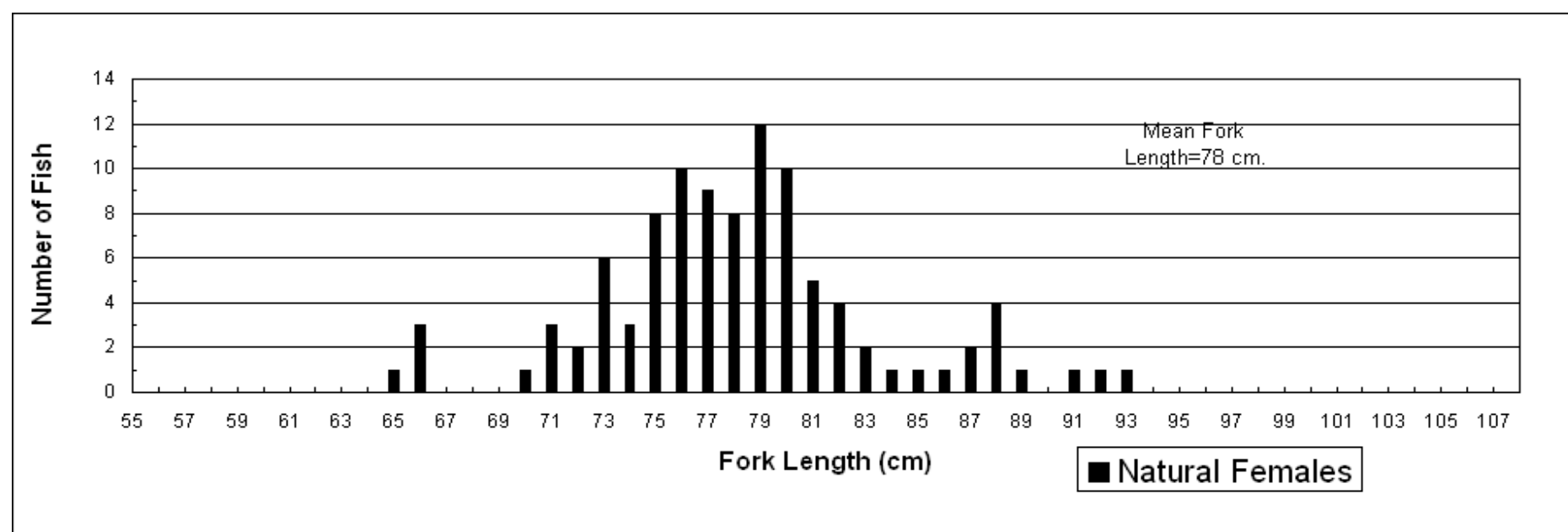
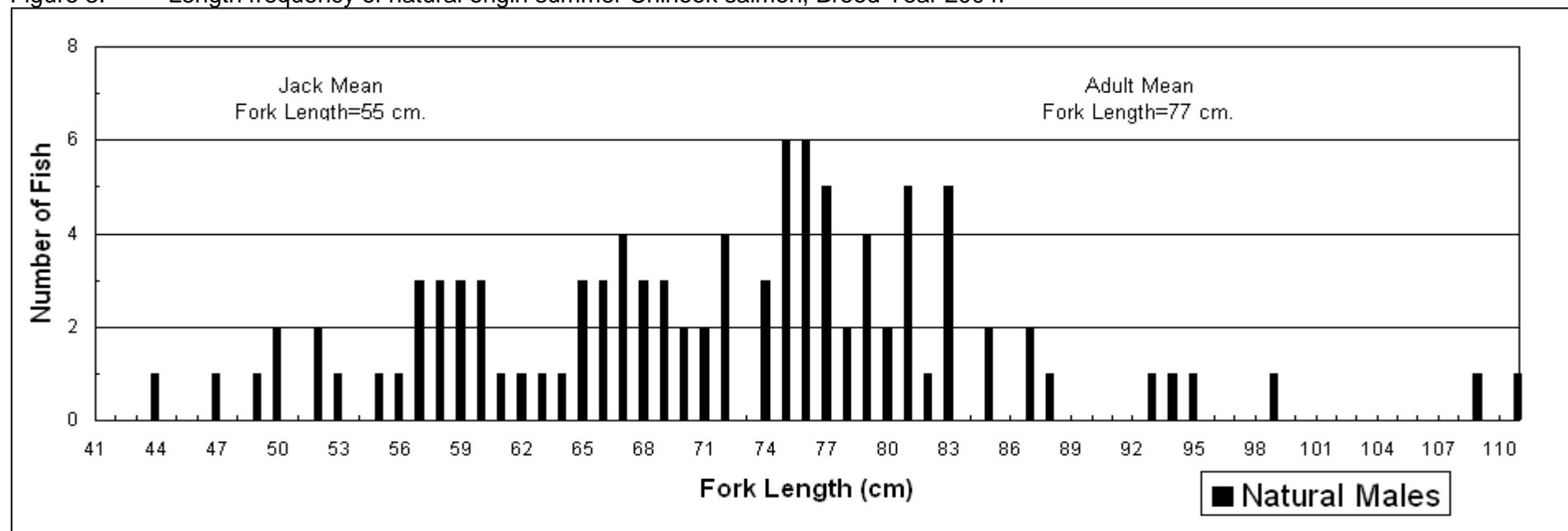
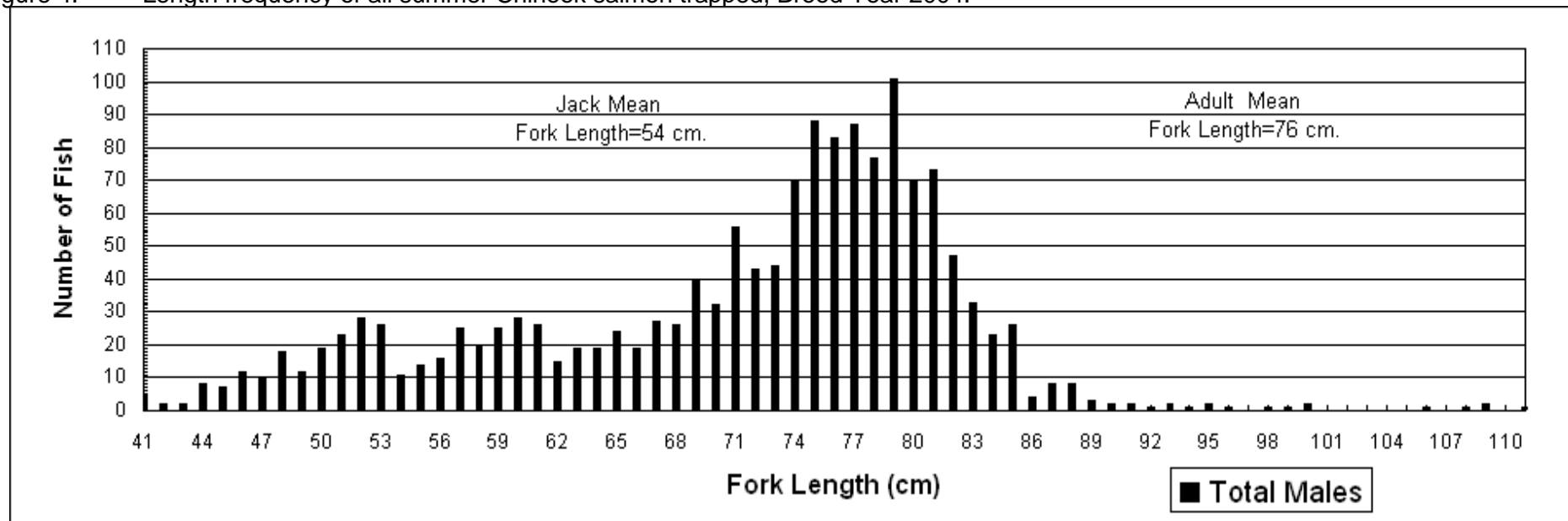
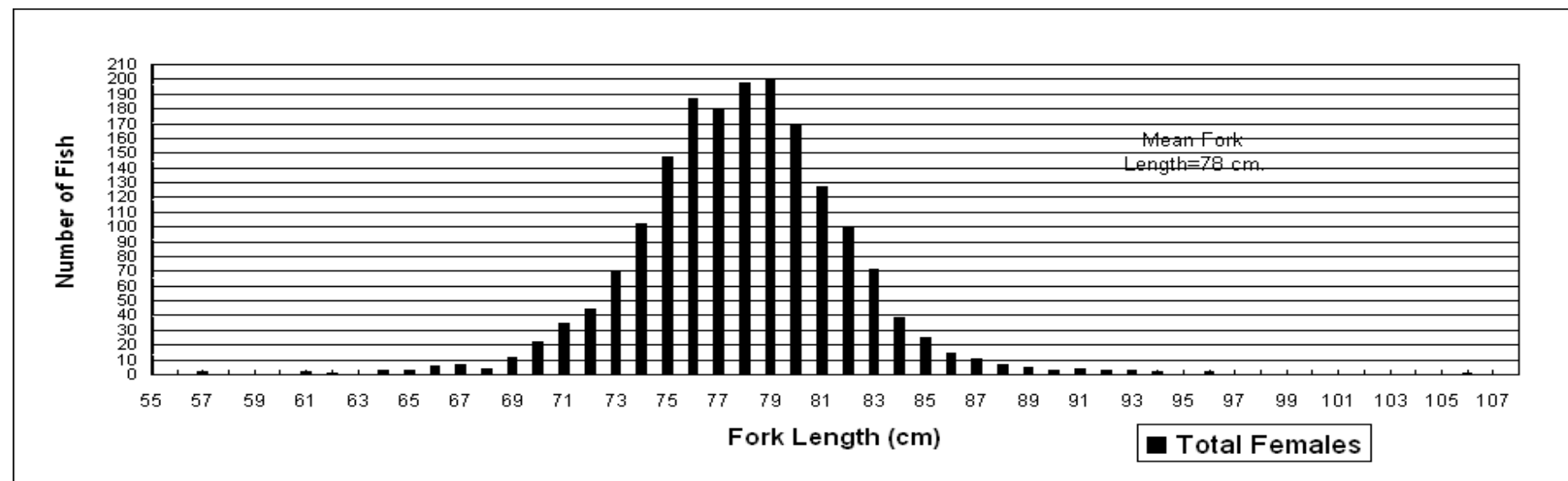


Figure 4. Length frequency of all summer Chinook salmon trapped, Brood Year 2004.



* 41 cm. length category includes one 35 cm. and three 39 cm. "mini-jacks"

** All fish less than or equal to 43 cm. considered "mini-jacks".



APPENDICES

Appendix A. Pahsimeroi Fish Hatchery Chinook salmon stock history.

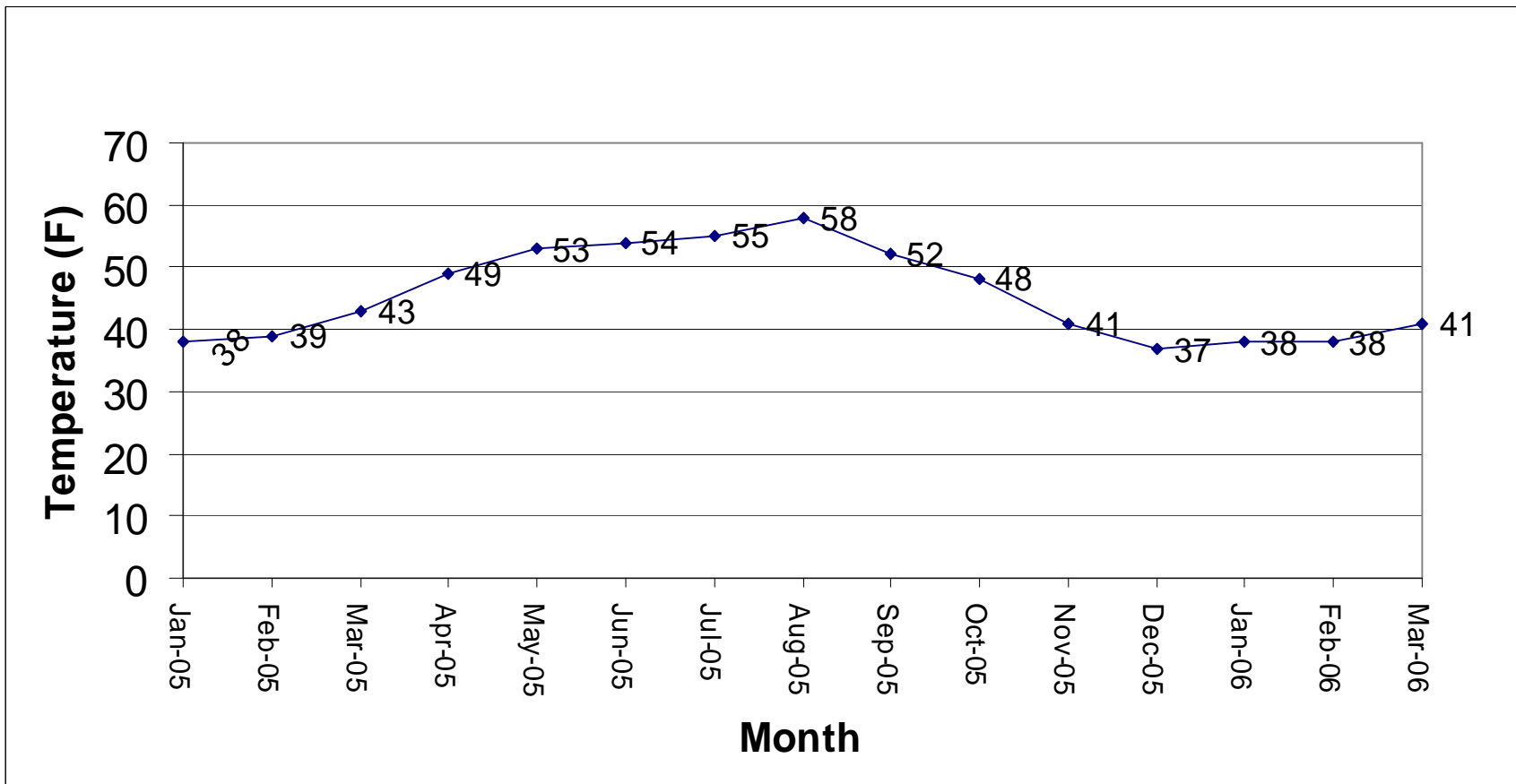
Brood Year	Egg Source	No. Eggs	Genetic Stock	Release Year	Smolts Released	Release Site
1981	Hayden Creek	<500,000	Spring Chinook	1983	437,332	Pahsimeroi River
1981	Pahsimeroi	<25,000	Summer Chinook	1983	13,700	Pahsimeroi River
1982	Pahsimeroi	75,402	Summer Chinook	1984	55,800	Pahsimeroi River
1982	Hayden Creek	107,234	Spring Chinook	1984	99,750	Pahsimeroi River
1982	Sawtooth	451,902	Spring Chinook	1984	420,400	Pahsimeroi River
1982	Rapid River	669,500	Spring Chinook	1984	622,850	Pahsimeroi River
1983	Pahsimeroi	261,188	Summer Chinook	1985	209,105	Pahsimeroi River
1983	Hayden Creek	279,398	Spring Chinook	1985	178,800	Pahsimeroi River
1984	Pahsimeroi	23,999	Summer Chinook	1986	12,100	Pahsimeroi River
1984	Hayden Creek	145,341	Spring Chinook	1986	81,000	Pahsimeroi River
1985	Pahsimeroi	2,602,404	Spring Chinook	1987	1,200,000	Hayden Creek and Yankee Fork
1985	Pahsimeroi	200,448	Summer Chinook	1987	158,007	Pahsimeroi River
1985	Pahsimeroi	127,332	Summer Chinook	1987	100,593	Pahsimeroi River
1987	Pahsimeroi	2,128,750	Spring Chinook	1989	1,128,750	Sawtooth Hatchery
1987	Pahsimeroi	696,004	Summer Chinook	1989	536,500	Pahsimeroi River
1987	McCall	605,091	Summer Chinook	1989	479,800	Pahsimeroi River
1988	Pahsimeroi	1,053,536	Summer Chinook	1990	808,536	Pahsimeroi River
1988	McCall	317,272	Summer Chinook	1990	245,000	Pahsimeroi River
1989	Pahsimeroi	294,893	Summer Chinook	1991	227,500	Pahsimeroi River
1990	Pahsimeroi	662,641	Summer Chinook	1992	605,900	Pahsimeroi River
1991	Pahsimeroi	22,235	Spring Chinook	1993	15,000	Rapid River
1991	Pahsimeroi	437,157	Summer Chinook	1993	375,000	Pahsimeroi River
1992	Pahsimeroi	172,139	Summer Chinook	1994	130,510	Pahsimeroi River
1993	Pahsimeroi	167,200	Summer Chinook	1995	147,429	Pahsimeroi River
1994	Pahsimeroi	0	Summer Chinook	1996	0	Pahsimeroi River
1995	Pahsimeroi	157,938	Summer Chinook	1997	122,017	Pahsimeroi River
1996	Pahsimeroi	85,660	Summer Chinook	1998	65,648	Pahsimeroi River
1997	Pahsimeroi	171,836	Summer Chinook	1999	135,669	Pahsimeroi River
1998	Pahsimeroi	74,105	Summer Chinook	2000	53,837	Pahsimeroi River
1999	Pahsimeroi	371,354	Summer Chinook	2001	283,063	Pahsimeroi River
2000	Pahsimeroi	633,906	Summer Chinook	2002	508,340	Pahsimeroi River
2001	Pahsimeroi	1,700,097	Summer Chinook	2003	1,205,918	Pahsimeroi River
2002	Pahsimeroi	1,293,123	Summer Chinook	2004*	1,108,028	Pahsimeroi River
2003	Pahsimeroi	1,587,310	Summer Chinook	2005	975,252	Pahsimeroi River
2004	Pahsimeroi	1,620,513	Summer Chinook	2006	1,073,951	Pahsimeroi River

*Smolt Release number is an estimated number due to fish kill during outmigration.

Appendix B. Pahsimeroi Fish Hatchery summer Chinook smolt release and adult return information.

RELEASE DATE	NUMBER	3-YRS	4-YRS	5-YRS	TOTAL	RETURN YEARS	% RETURN
May-70	300,000	89	N/A	101	N/A	71,72,73	N/A
May-71	250,000	40	425	14	479	72,73,74	0.192%
May-72	250,000	20	138	76	234	73,74,75	0.094%
May-73	347,000	1	5	32	38	74,75,76	0.011%
May-74	330,000	8	189	436	633	75,76,77	0.192%
May-75	114,000	53	115	X	X	76,77,78	N/A
May-76	121,000	7	X	32	X	77,78,79	N/A
May-77	235,000	X	O	4	X	78,79,80	N/A
May-78	218,000	1	29	13	43	79,80,81	0.020%
Mar-83	13,690	11	72	30	113	84,85,86	0.825%
Apr-84	55,800	27	278	52	357	85,86,87	0.640%
Apr-85	209,155	37	408	716	1,161	86,87,88	0.555%
Mar-86	12,095	13	47	31	91	87,88,89	0.752%
Mar-87	258,600	75	180	42	297	88,89,90	0.115%
Mar-88	598,500	135	389	79	603	89,90,91	0.101%
Mar-89	1,016,300	39	139	27	205	90,91,92	0.020%
Mar-90	1,058,000	20	98	119	237	91,92,93	0.022%
Mar-91	227,500	6	37	1	44	92,93,94	0.019%
Mar-92	605,900	13	26	0	39	93,94,95	0.006%
Apr-93	375,000	7	73	8	88	94,95,96	0.023%
Apr-94	130,510	7	27	9	43	95,96,97	0.033%
Apr-95	147,429	5	60	34	99	96,97,98	0.067%
Apr-96	0	n/a	n/a	n/a	n/a	97,98,99	n/a
Apr-97	122,017	18	207	32	257	98,99,00	0.210%
Apr-98	65,648	78	259	308	645	99,00,01	0.980%
Apr-99	135,669	73	515	256	844	00,01,02	0.622%
Apr-00	53,837	28	360	403	791	01,02,03	1.47%
Apr-01	283,063	308	1,072	284	1,664	02,03,04	0.59%
Apr-02	508,340	932	2,533	n/a		03,04,05	0.710%
Mar-03	1,205,918	314	n/a	n/a	n/a	04,05,06	n/a

Appendix C. Brood Year 2004 water temperature profiles Pahsimeroi Fish Hatchery.



Submitted by:

**Todd Garlie
Fish Hatchery Manager I**

**Doug Engemann
Assistant Fish Hatchery Manager**

**Nick Rieth
Fisheries Technician**

**Laura Rose
Biological Aide**

Approved by:

**Steven P. Yundt, Chief
Fisheries Bureau**

**Tom Rogers
Anadromous Fish Hatcheries Manager**